RISC user

AUGUST/SEPTEMBER 1993
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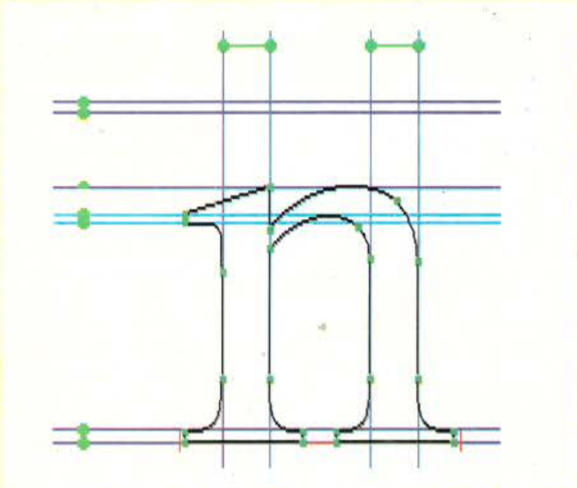
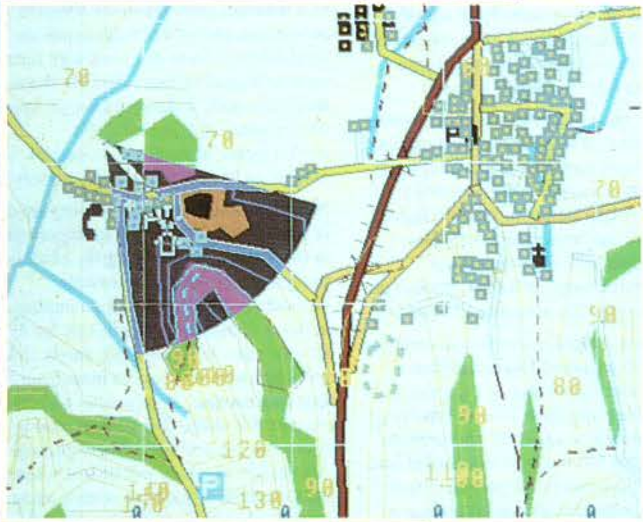
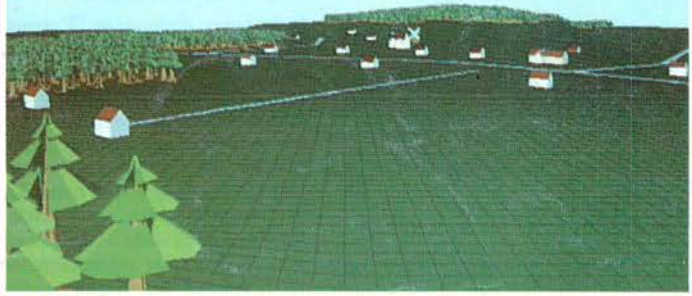
The magazine for users of Acorn RISC computers



All About Outline Fonts





Topographer

Action Replay

Acorn's Multimedia Expansion Unit

Educational Software at Home

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RISC *user*

THE MAGAZINE FOR USERS OF ACORN RISC COMPUTERS

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EDUCATION OR TRAINING

Education has been much in the news of recent months in Britain, and has become something of a political hot potato. Changes to the educational system seem to have proceeded at a fast and furious pace over recent years, and there have often been cries from the teaching profession that the changes are ill-thought out, and introduced too quickly with inadequate preparation.

Now it is not really the place of RISC User to debate our educational system. But there are implications it seems for educational users of Acorn's range of 32-bit computers. Most readers will be aware that Local Management of Schools (LMS) has been introduced in the last few years, and now affects virtually all schools. Each school is allocated a budget, and it is up to the school, with the approval of the school governors, to determine how its budget is spent.

In the past, most local education authorities had an advisor for IT, and specialist support staff. This team had the time and expertise to investigate computer hardware and software and provide advice to schools. Indeed, many authorities instituted a computer policy for their schools, which those schools were expected to follow, backed up by the support of the specialist IT staff.

Despite some criticisms, the system seems to have worked well (and I have had direct experience and knowledge of a number of regions in the past), with schools benefiting from the pooling of expertise and practical experience that follows from standardisation. Moreover, decisions on IT provision were made largely on educational grounds as a result of extensive research.

In the future, decisions on IT provision will be much more school based, not necessarily bad in itself. But schools can hardly be expected to provide from within their own staff the same level of experience and commitment of time that was previously available centrally - most teachers are already very hard working as it is. It seems to me that, as a result, schools may well be in a weaker position when it comes to arguing a particular course of action, particularly where external influences come into play.

Enter the school governors. In the new scheme of things they now have much more influence in the way a school spends its money, and that applies to IT equipment as much as anything else. We in the Acorn world need to be on our guard, as the argument in favour of PCs is put over more forcibly by governors from the professions, from business and from industry. Not that a PC per se is wrong for education, but the reasons for recommending PCs, in my view, rest on a fallacious argument - "it's what industry uses, so that's what we aught to have in schools", particularly with regard to secondaries.

Now while there are no doubt many enlightened school governors, there are two points which I would like to make. The first is about 'industry standards'. In practice there is no single industry or PC standard - there are PCs with Windows and PCs without; there are many different word processors, spreadsheets databases etc., all with different front ends and with their own styles and formats. And we shouldn't forget the quite widespread use of Apple Macintoshes and, indeed, Unix workstations, in many organisations. So what is an 'industry' standard anyway?

My other point concerns the purpose of IT in schools. Clearly IT has an important role in enriching and enhancing the educational process, at all ages and across the curriculum. There is in this an implicit, and in many schools an explicit, role for IT for its own sake. In this respect, surely children and employers will benefit most from IT that concentrates on principles and on transferable skills. The student who is trained to use one spreadsheet package on one specific machine will be lost when the next machine or package come-s along. The one who has understood the principles involved will readily be able to transfer these as required, and the cost of updating and retraining that future employee will be much reduced.

My plea, therefore, is that all who are involved in making IT decisions in schools should place educational needs at the forefront of their arguments, concentrate on educational principles, and let industry add the specific software or hardware related training it requires. That, in my view, is what education should be about. And on that basis, I continue to believe that Acorn's 32-bit range, together with the weight of quality educational software, provides one of the best platforms on which to achieve these aims.

M.W.

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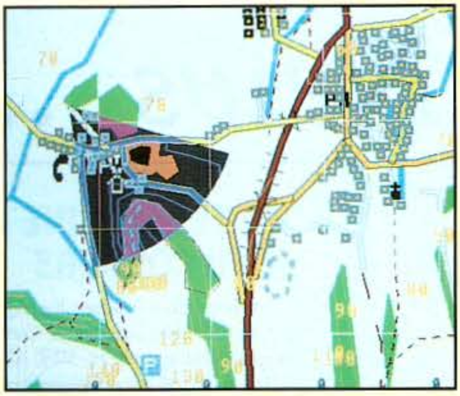

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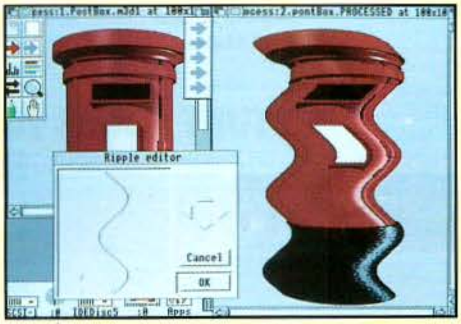

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by liked to be naughty. He ploughed u
he garden and pushed over the trees.

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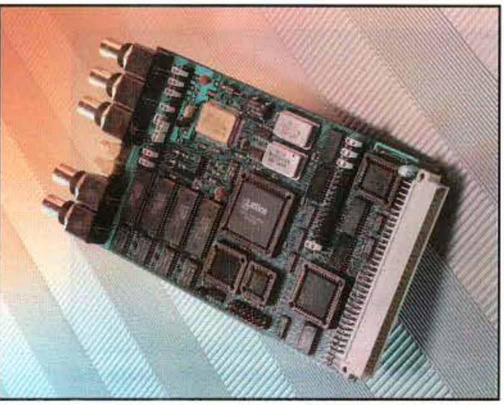
News ...

STATE MACHINE ARE BURSTING WITH COLOURS

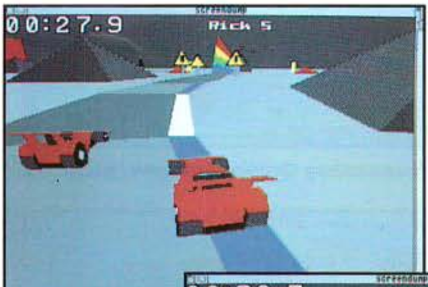
Luton-based State Machine has expanded its colour graphics card range with the *G16 Graphic Accelerator Card* at £279 ex. VAT, and the *ColourBurst* graphics card at £399 ex. VAT. The G16 card provides 16 bits per pixel for 32768 or 65536 colours giving near photographic quality. All standard RISC OS 3 modes are updated at 50 frames per second, while other modes have at least 22-25 frames per second update for a smooth Desktop and smooth animation.

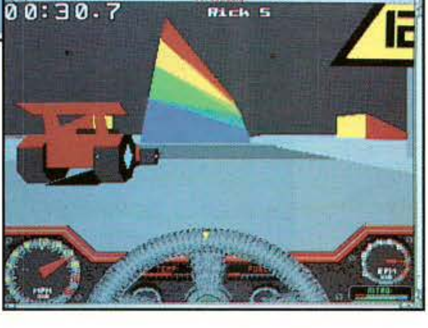


The ColourBurst card provides the professional user with broadcast quality studio graphics with 1Mb of frame store and optional daughter cards. Support software includes *TrueView* for optimum display of sprites, PBM, JPEG or CLEAR images, *Acorn Replay* in 32768 colour format for movie sequences, *DeskModes* for easy selection of Desktop resolutions, and *PALmaker* allowing a 256 colour palette to be optimised for any part of the screen.

For more information contact State Machine at its new address: Unit 4, Stopsley Business Centre, St. Thomas's Road, Stopsley, Luton LU2 7UX, tel. 0582 484266.

STUNT RACER 2000 FROM THE FOURTH DIMENSION





From the authors of *Chocks Away* comes this new-look stunt car game, with ramps, jumps, mid-air twists and even loops. If that weren't enough you also need to score points and earn money to boost you car's performance for later rounds. Stunt Racer 2000 offers full 3D representation, keyboard, mouse or joystick control, instant replays, garage facilities plus 20 varied and exciting tracks. The game is scheduled for release in July at £34.95.

Other recent games from Fourth Dimension include *Virtual Golf* at £34.95 and *Demon's Lair* at £25.95. For further details contact The Fourth Dimension, 1 Percey Street, Sheffield S3 8AU, tel. 0742 700661/769950.

ACORN RELEASES FLOATING-POINT ACCELERATOR

Acorn Computers has at last released its floating-point accelerator card for the Archimedes range. The FPA chip fits directly onto an A5000 motherboard, onto the A540 processor card, and similarly for the R260 Unix workstation. Any software using the floating point emulator will automatically use the FPA10 once installed. The FPA's performance peaks at 5 MFLOPS (Millions of Floating Point Operations per second) at 26MHz, and averages 3 MFLOPS for a range of calculations.

Acorn says that owners of early A540s and R260s will need a free of charge modification to their processor cards - advice is available from Acorn dealers or Acorn Customer Services. RISC iX users will require an additional software driver obtainable from Acorn Customer Services.

The FPA costs £99 (ex. VAT) from Acorn dealers. A 62-page data booklet, covering processor schematics, programmer's model, instruction set and hardware/software considerations is available from Vector Services, 13 Dennington Way, Wellingborough, Northants NN8 2RL for £10 inclusive. Acorn Customer Services are at Fulbourn Road, Cherry Hinton, Cambridge CB1 4JN, tel. 0223 254254.

THE NEWS FROM ANGLIA TV

Anglia Television Education is supplying a range of new Information Technology support packages for the Channel 4 Schools service. The packs so far announced are *The Earth in Space*, a Key Stage 2 datafile pack for use with Keynote on the Archimedes, *In Tudor Times*, again a Key Stage 2 datafile pack for the Archimedes, and *The Civil War*, a Key Stage 3 pack also for the Archimedes. All datafile packs are designed for use with the KEY range of software applications, and are supported by television programmes. For further information contact Basia Kopczynska on 081 778 7536.

ACORN WORLD

Acorn World, the replacement for the autumn Acorn User Show, takes place from October 29th - 31st this year. Entrance will be £6 for adults, £3 for children, but advance tickets will be available for £5 and £2.50 respectively. This event is being organised by Acorn, so we can anticipate some changes. RISC User will be at the show, and we will be bringing you more information in future issues. For information on Acorn World contact Exhibition Planning Services, P.O.Box 162, Staines TW19 5JX, or tel. 0223 254441.

POCKET BOOK PRICE REDUCTION AND NEW SOFTWARE

Acorn has announced a special offer price of £169.95 ex. VAT on the Acorn Pocket Book valid until 30th September 1993. This saves £50 on the normal price. For education, the Class Pack of eleven machines and an A-Link is also available at £1699.50 until the same date.

New software for the Pocket Book is also scheduled for release mid-August. The *Acorn Schedule* comes on an SSD ROM card and combines the functions of a diary, personal organiser, a calendar and timetable. *Acorn Schedule* will sell for £49.95 inc. VAT, but until 30th September it will be available at a special introductory offer price of just £19.95 inc. VAT. The Pocket Book and software is available from all Acorn dealers, including Beebug, who can supply more information. Acorn Computers Ltd. are at Fulbourn Road, Cherry Hinton, Cambridge CB1 4JN, tel. 0223 254254.

FASTER PC EMULATION

An alternative to Acorn's PC Emulator has been announced by program author D.J.Lawrence. *FasterPC* is claimed to be up to nine times faster than PCem, with improved sound simulation. It supports CGA, VGA and Tandy IBM PC graphics adaptors and hard disc partitions, and is supplied with a Microsoft compatible mouse driver. FasterPC will also run some software which will not run under PCem. The package costs £19.95 inclusive direct from D.J.Lawrence, 33 High Street, Farnborough, Hampshire GU14 6ES, tel. 0252 543973.

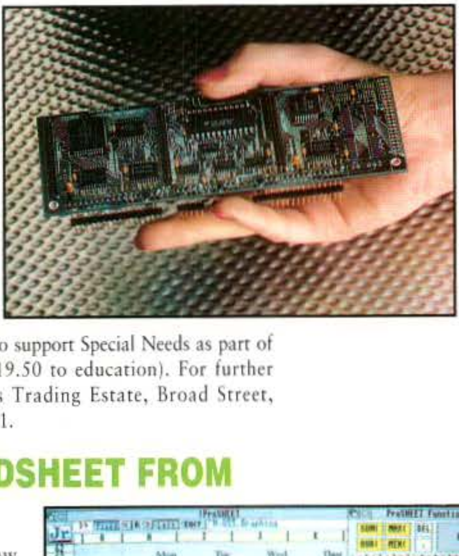
COWBOYS AND INDIANS IN THE VANGUARD

Matt Black has announced two new products: *Vanguard Graphics Pack II - Cowboys & Indians* is Matt Black's second clip art collection from artist Chris Kecun in comic strip style. The cost of the pack is £15 inc. VAT. *Gamer's Upgrade* is a permanently installed joystick interface kit providing four Atari-type joystick ports with support for two independent fire buttons. The cost is £27.99 inc. VAT.

A new CD-ROM produced by Matt Black contains over 4000 high quality colour photographs from stock photo libraries, professional photographers and other organisations. The *Photo Lib CD* stores images in compressed JPEG format. Each image is up to 485x730 pixels in full 24-bit colour which can be viewed to their full extent using graphics cards such as the G8 from State Machine. Software supplied with each CD-ROM allows all images to be converted to sprites for display in Desktop windows.

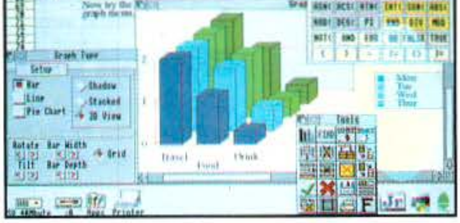
The PhotoLib CD-ROM costs £299 ex. VAT, and a demo on floppy disc is available for £5. Special Theme Photo CDs are also available at £299. Full details on all these products are available from Matt Black, P.O.Box 42, Peterborough, Cambs PE1 2TZ, tel. 0733 315439.

THE EMU HAS LANDED



Cumana, perhaps best known for its disc drives and CD-ROM units, has revealed its new upgrade board for the A3000, A3010, A3020 and A4000. The *EMU* interface provides expansion capability for these Acorn systems allowing up to seven different products to be connected at one time: User Port, User plus Analogue Port and MIDI, SCSI, IDE, Companion (unspecified as yet), PCMCIA, and a full length third party board. Cumana's rival to the Ultimate Expansion MicroPodule from HCCS costs just £55.28 (£49 to education). The EMU card is also available to support Special Needs as part of an A4000S upgrade costing £126.81 (£119.50 to education). For further information contact Cumana Ltd., Pines Trading Estate, Broad Street, Guildford, Surrey GU3 3BH, tel. 0483 503121.

LOW-COST SPREADSHEET FROM SILICON VISION



ProSHEET is the name of a new spreadsheet package from Silicon Vision. It has been developed specifically for the educational market with emphasis on ease of use via an icon-driven toolbox. ProSHEET includes a full range of spreadsheet functions, macros, and graphing facilities for bar, line and pie charts. All graphs are hot-linked to the spreadsheet data so that any changes are automatically reflected in the graphs. The cost is just £39.95 ex. VAT from Silicon Vision, Signal House, Lyon Road, Harrow, Middlesex HA1 2 AG, tel. 081 422 3556.

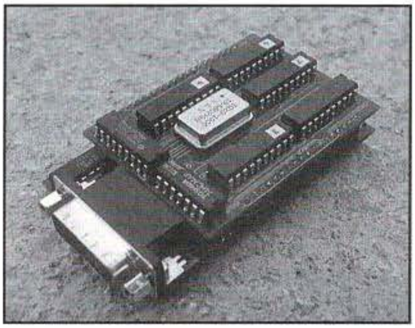
PROTECT YOUR ARCHIMEDES WITH AN IRON MASK

IronMask is an application which protects and safeguards your Archimedes from users with mischievous intent, like disabling auto-boot, or replacing !Boot with something silly. Specialist supplier Turing Tools has announced the release of version 2.1 of IronMask which overcomes all these kinds of problem. IronMask also places 'tripwires' in the system to resist attempts to gain access to the Desktop without running the boot sequence and activating IronMask security.

IronMask is available at £69.00 inclusive, while existing users with version 2.0x can upgrade free of charge by returning their original disc. Site licences for schools cost £210. For more information contact Turing Tools at 149 Campbell Road, Cowley, Oxford OX4 3NX, tel. 0865 775059.

HCCS GOES ON EXPANDING

The HCCS Ultimate Expansion System continues to grow. An analogue MicroPodule is now available for £29, while two MIDI podules have been released in conjunction with Electromusic Research. These cost £49 for MIDI alone, or £69 for MIDI plus HQ sound sampler. All prices are quoted ex. VAT. Further MicroPodules are scheduled for release over the next few months.



HCCS has also introduced a 40Mb IDE hard drive at £228.94 for the A3010, £219 (including User Port) for the A3000, and only £199 for the A3020. HCCS also has a trade-up whereby users with suitable drives can trade in their existing expansion card for an Ultimate system and the benefits of further expansion capability.

For further information on the Ultimate MicroPodule System contact HCCS at 575-583 Durham Road, Gateshead, Tyne and Wear NE9 5JJ, tel. 091 487 0760.

NEW TURBO DRIVERS FROM COMPUTER CONCEPTS

Computer Concepts has updated its Turbo Drivers and released some new ones. There is also a new Canon bubblejet printer, the BJ230, functionally identical to the BJ200 (see review in RISC User 6:5). New RISC OS 3 Turbo Drivers are available for both the BJ200 and BJ230. The Turbo Drivers including software and cable cost £49 ex. VAT on their own. The BJ200 with Turbo Driver is now £275 ex. VAT, while the new BJ230 with Turbo Driver is £319 ex. VAT. Upgrades to the latest RISC OS 3 Turbo Drivers are free of charge to registered users.

CC has also released RISC OS 3 Turbo Drivers for Hewlet Packard printers; the DeskJet, DeskJet Plus and the DeskJet 500, and colour drivers for the 500C and 550C, again at £49 ex. VAT for software and cable. In addition, CC has also announced a Turbo driver for the new Epson Stylus 800 printer reviewed in this issue of RISC User, again at £49 ex. VAT. Further information on Turbo Drivers and Canon printers is available from Computer Concepts, Gaddesden Place, Hemel Hempstead, Herts HP2 6EX, tel. 0442 63933.

BRITISH BIRDS WIN GOLD

A CD-ROM on British Birds, a joint venture by Acorn, the British Library and the Royal Society for the Protection of Birds, produced by ILP of Newcastle, has won a prestigious gold award at the British Interactive Multimedia Associations 1993 awards ceremony. And it was the Archimedes version (reviewed in RISC User 6:8) which won the award, rather than the PC version. For more information contact Acorn Computers Ltd., Fulbourn Road, Cherry Hinton, Cambridge CB1 4JN, tel. 0223 254254.

A DESKTOP VIGIL

Vigil is a multi-tasking program monitor/debugger which will provide essential help for programmers in any language. With Vigil you can display the contents of registers, workspace, selected memory blocks, Basic variables and their values, and Wimp messages received all while your own program is operational. Vigil also incorporates a timer to improve time critical sections, an ARM code disassembler, and a facility to disassemble modules and inspect their workspace and other parameters. Vigil will cost in the region of £25 and is expected to be available August/September from Rheingold Enterprises, 7 Waterbridge Court, Appleton, Warrington WA4 3BJ, tel. 0925 210657.

HAMPSHIRE EXPLORES NATURE

The Hampshire Microtechnology Centre has announced that it is the sole UK distributor for a new CD-ROM, *Usborne Exploring Nature*. Exploration starts from a child's study bedroom, and by passing through the windows or an open door, allows children to find flora and fauna in their correct context. A naturalist's computer-based 'toolbox' includes camera, notebook, binoculars, tape measure and other devices. Cost is expected to be around £120 with a release date of September. For more information contact The Microtechnology Centre, Connaught Lane, Portsmouth PO6 4SJ, tel. 0705 378266.

GETTING IN THE SWIM

Swimming, an 8-disc interactive 'multimedia' pack approved by the Amateur Swimming Association and the Royal Life Saving Society UK is now available price £35.95 ex VAT. This graduated learning package has over 40 animations, more than 100 graphics with voice-overs, 17 quizzes to help the learning process, and simulations to test your knowledge. Further details are available from CD Sports Ltd., 4 Wirral Business Centre, Dock Road, Birkenhead, Wirral L41 1JW, tel. 051 691 0893.

NEW SOFTWARE FOR ACORN POCKET BOOK

Minders Software, a new name in the Psion Series 3/Acorn Pocket Book market, has announced four new packages for these machines: *Dwarfs* and *Dragons* costing £8.95 is a classic adventure game; *Call Coster* at £7.95 allows you to see how much your telephone calls are costing; *Stock Control*, also for £7.95, offers standard stock control functions; while *Hex* at £5.95 is a tool for programmers providing file dumps in ASCII and hex formats. All programs are written in OPL and are supplied on SSDs or on DOS 3.5" discs. For further information contact Minders Software, 28 Kendal Green, Kendal, Cumbria LA9 5PN, tel. 0539 740193.

10 OUT OF 10

Aptly named 10 Out of 10 Educational Systems (the educational arm of Fourth Dimension) has announced that its next release for the Archimedes will be *10 Out of 10 Maths (Algebra)*. This pack, priced at £25.95, contains six expertly designed educational games covering ten principal areas of algebra, including patterns, sequences, formulae, graphs, equations, inequalities and symbols. The package covers topics from the National Curriculum Attainment Target 3 (Algebra), with subjects and levels of interest to children on Key Stage 1 to Key Stage 3. For further details contact 10 Out of 10 Educational Systems, 1 Percy Street, Sheffield S3 8AU, tel. 0742 780370.

DARRYL THE DRAGON

Following the release of Granny's Garden (reviewed RISC User 6:6), 4Mation has now released a completely new adventure program for younger users called *Darryl the Dragon*. Equally suitable for school or home use, Darryl the Dragon is priced at £19.50 ex. VAT with a site licence at £39.00 ex. VAT. A set of activity sheets is available separately for £10.00 ex. VAT. For more information contact 4Mation, 14 Castle Park Road, Barnstaple, Devon EX32 8PA.

LONGMAN LOGOTRON TALKS TO SCHOOLS

Talking PenDown is a version of Longman Logotron's PenDown word processor which can speak each letter, word or sentence as it is typed.

Talking PenDown will also read back a paragraph, a marked block or a whole document. talking PenDown allows a child to hear when he or she has gone wrong, and can hear when a mistake has been corrected. Longman Logotron says that classroom trials have indicated that Talking PenDown is particularly successful with older children, who find it less difficult to go back to basics when using the computer.

Talking PenDown costs £64.00 for a single pack, £190 for a primary school licence, and £330 for a secondary school licence. Registered PenDown users will be offered preferential prices. For details of Talking PenDown contact Longman Logotron at 124 Cambridge Science Park, Milton Road, Cambridge CB4 4ZS, tel. 0223 425558.

MONOTYPE FONTS FOR THE ARCHIMEDES

LOOKsystems of Norwich has obtained an exclusive licence to distribute the well known Monotype fonts for the Archimedes. The Monotype fonts library contains over 700 original typefaces, and LOOKsystem's first pack of 100 contains such faces as Baskerville, Garamond, Gill Sans, plus more fancy fonts such as Braggadocio, Mercurius and Poliphilius. The pack costs £95 inc. VAT. The fonts are supplied in RISC OS 2 or RISC OS 3 format with scaffold lines and kerning pairs (RISC OS 3). Skeleton lines will be available later as a free upgrade. Further details can be obtained from LOOKsystems, 47 Goodhale Road, Bowthorpe, Norwich NR5 9AY, tel. 0603 764114.

This is Arial condensed.
This is Baskerville
This is Bembo.
This is Garamond Italic.
This is Gill Sans Light.
This is Rockwell.

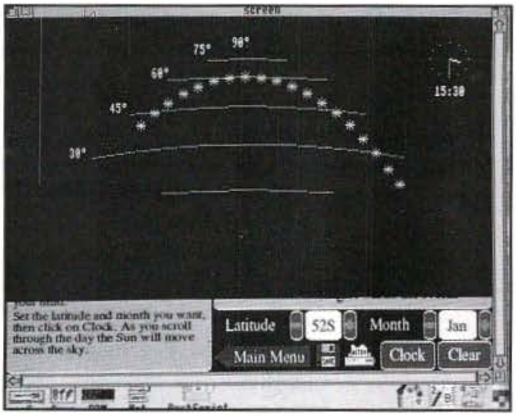
This is Braggadocio.
This is Gill Sans Ultra Bold.
This is Mercurius Script Bold.
This is Neographic.
This is Palace Script

TOPOLOGIKA UPDATES

Topologika has released new versions of two of its popular educational packages. Release 2 of Peter Kilworth's art and maths pack *Imagine* offers all the original features but now multi-tasks, has a new kaleidoscope feature, and improved turtle graphics options. Imagine 2 is also supplied with three free Gallery discs (for slide shows etc.) and a free site licence all for £45.00 ex VAT. Upgrades from release 1 cost £10.00 ex VAT.

Topologika's *Astro* 'Earth in Space' pack is also into release 2 has been extensively reprogrammed, with special Help screens and improved animation. Topics covered include sunrise and sunset, movement of the sun across the sky, seasons, movement of the moon around the earth, phases, comets, spacecraft and more. Astro 2 costs £35.00 ex VAT, and an upgrade from version 1 just £7.50 ex. VAT.

For more information contact Topologika at P.O.Box 39, Stilton, Peterborough, Cambs PE7 3RL.

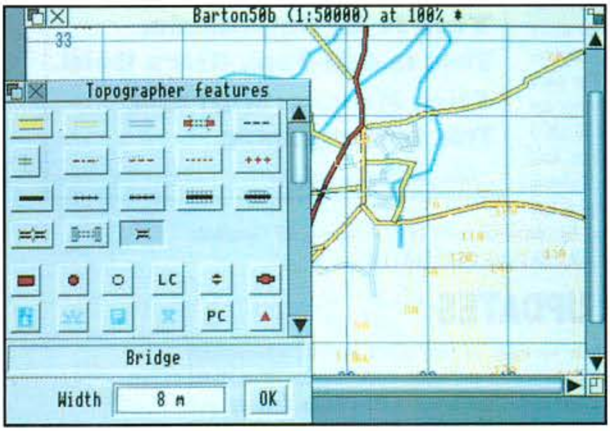


Set the latitude and month you want, then click on Clock. As you scroll through the day the Sun will move across the sky.

Topographer: A mapping package from Clares

Reviewed by Mike Williams

Since I first had an opportunity to see Topographer in action last year, I have been eagerly awaiting its release. Now that I have had a chance to use it in earnest, I have to report that after some initial disappointment, I found myself very much warming to the package, but I still have some serious reservations.



Bridge

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Figure 1. Selecting features for a map

Topographer is a package for the creation and editing of maps, with the style and flavour of Ordnance Survey maps very much in evidence. However, unlike a conventional map, Topographer can also create a 3D view from a map, thus providing a more realistic impression of the environment. At least that is the aim.

The software is supplied on two discs as two separate applications (*Topo2D* and *Topo3D*), together with an A5 size manual of 54 pages. The whole package is presented in what for Clares is a new style box, and the manual is fortunately quite separate, and not glued into the packaging as in Clares' previous style.

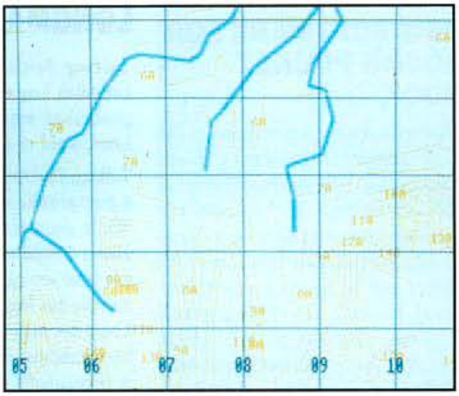


Figure 2. At the beginning - contours and rivers

The manual is divided into essentially three sections: a short initial tutorial using three example files on disc, twenty pages describing the features of the map editor, and a further section on generating 3D views. The manual is, in my opinion, much too terse in style, and I was too often left wondering how a certain feature might work even when I had read the relevant section. There are too many items which are not described at all (text for example), and while there are many illustrations of appropriate menus and dialogue boxes, I would like to have seen more examples of maps to show more clearly how the various features worked.

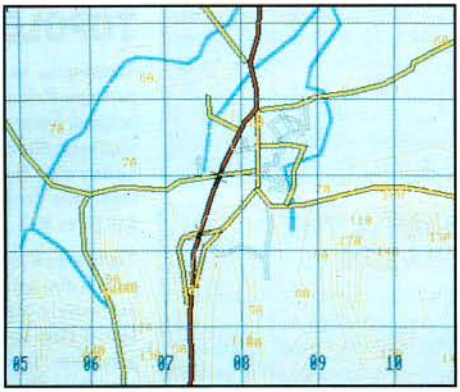


Figure 3. Adding the roads

In fact, *feature* has a particular meaning within Topographer. Maps are constructed from one of four so-called features: *Symbol*, *Line*, *Area*, and *Contour*. All of these can be selected from a menu, or more conveniently from a separate *Features* window (see figure 1). All the symbols and other forms of representation correspond to those used on the 1:50,000 Ordnance Survey maps. Choose a different scale, say 1:25,000, and the same symbols are used and not the Ordnance Survey ones appropriate to that scale. Those looking for precise fidelity in this respect will be disappointed in the lack of detail, but broadly speaking Topographer does a good job.

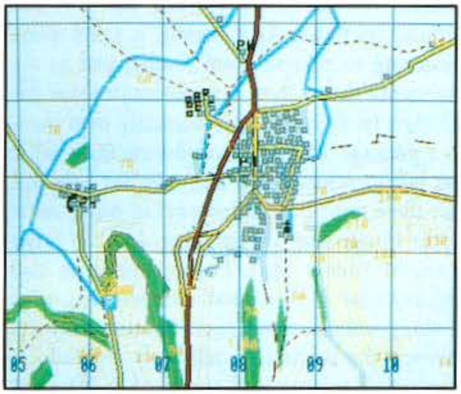


Figure 4.
Adding the remaining symbols - note individual houses for urban areas

To test Topographer's capabilities I set out to create a 1:50,000 map of a small area familiar to me, and with some interesting features. The sequence that I followed is illustrated in figures 2 to 5. The first job was to select the scale, size and origin for my map area so that it corresponded to the O.S. map from which I was working. Some trial and error was needed before I got things quite right, but these choices are largely straightforward, though familiarity with map scales and the National Grid system helps.

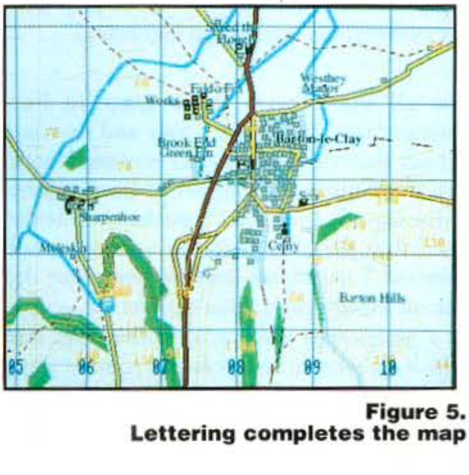


Figure 5.
Lettering completes the map

I decided to deal with the main natural features first, the contour lines and rivers. Both can be created by stepping from one point to the next, or by freehand drawing. I found editing lines once drawn very fiddly, if not impossible. While they are shown with control points (as in Draw), the control points cannot be manipulated to change the path. The manual was not helpful, and I can imagine children, in particular, becoming easily frustrated at the way what you are trying to achieve seems thwarted by the software.

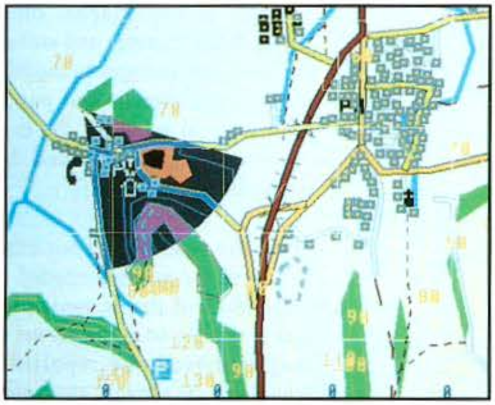


Figure 6.
Selecting a viewpoint and extent of view

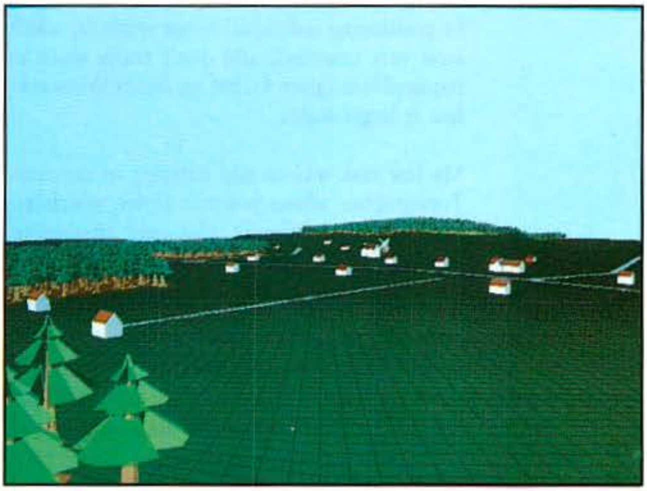


Figure 7.
The 3D view corresponding to the map of figure 6

Contours may be either closed, forming a continuous closed path, or open, starting and finishing at the edges of a map. Contours presented a number of problems, snapping unexpectedly (when not required) to the edge of the map area, and with Topographer telling me that I had crossed two contour lines when visually this was clearly not the case. However, perseverance eventually paid off, and I then moved on to stage two, adding roads.

The type of road is chosen from the *Features* window. Topographer also allows you to choose the width of road. This is confusing as most objects on conventional maps are portrayed at a fixed size in relation to the scale, but I presume this information may be used when creating 3D views (and is relevant for very large scale maps). To me it is an example of Topographer offering too much detail. While cuttings and embankments can be included, my attempts to model a bypass raised on an embankment and passing over a slip road were to no avail, the eventual 3D view showing a hump-backed bridge and no embankments.

Once the roads had been completed, I then added all the symbols needed to complete the map. Most of this is straightforward enough, and a symbol once placed on the map can be readily moved and repositioned. Areas of woodland, or similar, are created by choosing the appropriate feature, and then drawing the bounding line. The most difficult part is the creation of urban areas. On an O.S. map, areas of housing are coloured in a pale beige. In Topographer, such areas can only be created by positioning individual house symbols, which look very crowded, and don't really work as required (see figure 4), but no doubt this works fine at larger scales.

My last task was to add lettering to the map. Topographer allows just two styles, which are not really that different, plus road numbering. Again, this works well enough for most purposes, if not to the standard of traditional O.S. maps.

PRODUCT INFO

Package	*Topographer*
Supplier	*Clares Micro Supplies,* *98 Middlewich Road,* *Northwich,* *Cheshire CW9 7DA.* *Tel. 0606 48511* *Fax 0606 48512*
Price	*£79.95 inc. VAT*

CREATING 3D VIEWS

Once a map has been created, you can start generating 3D views. You select a viewpoint, and a direction and extent of your view, as shown in figure 6. To do this, the previously created map is first transferred to Topo3D. Then, selecting *Make view* from the menu starts the generation process. This was often lengthy (half an hour or more) and not always successful - on several occasions I ended with no 3D image at all. On other occasions the viewpoint chosen resulted in a very bland and uninteresting display. The result (see figure 7) is a little crude, but pleasing nevertheless to see a map come to life in this way.

DISCUSSION

Topographer is without doubt an innovative product for the Acorn market, but it is not without its flaws. As it stands, it takes some mastering to achieve good results, and as my experience shows there is no guarantee that the 3D view facility will work correctly even then. As a package it feels over-elaborate for what it sets out to achieve, and I cannot but help feel that there must be simpler ways of doing some of the things that Topographer does. In other areas it seems that Topographer is too ambitious for its own good. I suspect that some of the problems stem from inherent conflicts between the needs of a relatively stylised 2D mapping package and those of a 3D view generator, which needs more information than a conventional map provides.

Anyone buying Topographer today should be aware of its problems and limitations, and be prepared to provide ample feedback to Clares on their experiences with the package, and on how it works in the classroom, which is surely the biggest market of all for such a package. Potential users should also note that despite Clares' claims (no doubt true) that Topographer *will* run on a 1Mb machine, both Topo2D and Topo3D (with my example) grew to over 800K each, and I had problems at times running in a 4Mb machine. Screen refresh ideally needs to be faster, and the time to generate a 3D view from a complex map (like my example) can literally run into hours.

For all that, I very much came to like Topographer. It attacks a new and exciting subject area with vigour, and I very much hope that it will not be too long before Clares release a new improved version. I hope they rewrite the manual at the same time - to achieve its full potential Topographer deserves better than the current meagre pages. Don't expect the quality of a professional and expensive O.S. map, but take it for what it is, and despite some obvious limitations, applaud Clares for what they have achieved.

Virus Update

Lee Calcraft reports on the viral threat to your Archimedes.

There are now at least 44 major virus strains which can infect your Archimedes. And while this is not a patch on the thousands which haunt PC users, it is nevertheless a serious state of affairs. One of the latest, called *Fcodex,* which appeared in three Exeter schools in May, is capable of wiping all data from hard and floppy discs. It manifests itself inside host applications as a Basic program with the name *Fcodex,* and modifies the !Run file of the application to ensure that Fcodex is run each time the application itself is run.

Most viruses work in this way, though many are called by modified !Boot rather than !Run files. Figure 1 shows files used by each of the 44 virus strains. Note however that some use varying aliases, so you can't always be sure to spot one by comparing filenames. Moreover, many are activated by the mere act of the host application being 'seen' in a directory viewer. In other words, if you open your root directory, and it contains infected applications, each manifestation of the virus will be run at the moment the directory is opened. At this point it could wipe your hard disc. Unfortunately this does not take long, since viruses don't tend to delete files one at a time, they just write rubbish over the catalogue information. But that is enough!

Of the 44 known virus types, just 7 are classed as malicious:

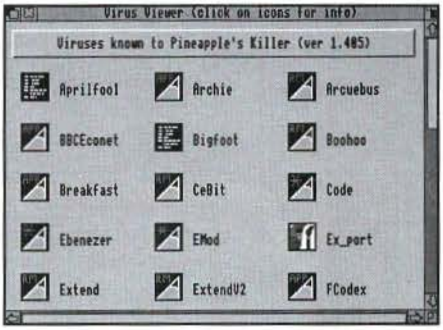
Fcodex, Parasite, Penicillin, Sprite, T2,
Terminator, Thanatos (alias RISCOSExt)

so it is worth keeping an eye out for these in particular.

One useful trick when looking for viruses is to open directory viewers with Ctrl held down. This ensures that the !Boot files of the applications within it are not run, and gives you a chance to inspect before an infection can spread - or better still, exit the Desktop and use the command line to examine a suspect disc. But the only real answer is to use some form of virus protection. RISC User has featured two useful virus protection programs: *Watchdog* (4:4), and *Virus Alert* (4:8 & 4:9). Both these are non-virus-specific, and are able to warn of virus activity without specific knowledge of a particular virus.

Other software, such as the public domain *Guardian* and Pineapple Software's *Killer* look for the identifying characteristics of viruses known to them. Such an approach is generally much more foolproof, but obviously relies on the anti-virus software being thoroughly up to date.

Pineapple Software's Killer application (developed in conjunction with Acorn) is particularly effective. It can detect and destroy all 44 of the strains mentioned above. And also comes with a background module which can detect the presence of most viruses without the need to scan each disc. Network licences are available for Killer, and this is highly appropriate, since schools seem to be a most fertile place for viruses - witness for example Fcodex. In the light of this I would seriously urge all schools to consider installing effective virus protection schemes. It is not a question of *if* your school will be infected, but *when.*



Viruses known to Pineapple's Killer (ver 1.485)

Figure 1. A gallery of the infamous: the 44 strains of Archimedes virus

Pineapple Software's Killer costs £24 + VAT for a year's subscription (typically quarterly updates) for a single user. Pineapple are on 081 599 1476.

As we reported in the article *Viruses and the Law* (RISC User 4:8) the intentional distribution of computer viruses is punishable by prison sentences of up to 5 years. Anyone with information about computer viruses should contact:

The Computer Crimes Unit
New Scotland Yard,
2 Richbell Place,
London WC1 8SD.
Tel. 071 230 1176/7

Acorn's Multimedia Expansion Unit

Reviewed by Lee Calcraft

Acorn's Multimedia Expansion Unit

Acorn's Multimedia Expansion Unit is essentially a fast CD-ROM drive together with an audio preamplifier and mixer, housed in a case the same size as that of the A4000. It will therefore fit neatly on top of an A4000 or A5000, or underneath most other Acorn machines. As you may have read, there is provision within the box for an audio amplifier and for a further 3.5 inch drive such as a second CD-ROM drive or a magneto-optical drive. A suitable amplifier is to be marketed by Cumana Ltd, scheduled for the fourth quarter of 1993, though no price is available at the time of writing.

The idea of packaging these components in a compatible flat-stacking case is an excellent one, and avoids the extra desk space taken up by a conventional drive. The inclusion of the audio is another smart idea. The Expansion unit actually contains a 3-input audio mixer (although without individual level controls on each input). You can even wire the audio output of the computer into the mixer by taking a lead from the Archimedes' headphone socket to phono sockets at the rear of the Expansion Unit.

A further plus is that the drive used in the unit is a Sony CDU 561 double-speed, Photo-CD compatible drive, and has a claimed transfer rate of 300Kb/sec. This is twice the speed of standard CD-ROM drives, and we will see how this works out in practice in a moment. Standard CD-ROM drives are not fully Photo-CD compatible. Given the right software you can only access the first so-called *session* on a Photo-CD. Exactly how many sessions are used on any given Photo-CD depends in part on the whim of the operator. He may lay down a few images, then go off for a cup of tea, and lay down the rest in a second session. In any case, if images are laid down at different times on a given CD, this will always involve more than one session. To read anything beyond the first session, you need a multi-session compatible drive - and the Sony CDU 561 is just that.

In fact, assuming that you are using CDFS version 2.13 or later (essential for use with the Expansion Unit), your system is termed "Photo-CD-ready". This means that when Acorn complete their Photo-CD software in the next few months, following the recent licence agreement with Kodak, you should only need a simple RISC OS application to read Photo-CD discs.

INSTALLING THE UNIT

So how does the Expansion Unit work out in practice? Setting it up is simplicity itself, thanks both to software supplied on the accompanying support disc (though, oddly, this only works with Cumana SCSI cards, not Acorn ones!), and to the SCSI address selector at the rear of the unit. The rear of the Unit houses two 50 way Centronics type SCSI connectors, and these must be connected into your SCSI bus. If your computer does not have a SCSI interface, you will need to obtain one. Acorn can supply a Cumana-sourced one with the unit for an extra £100. This would be a fast 16 bit interface on a standard podule or an 8 bit interface on a mini-podule.

Once you have done this, just configure the number of SCSI drives, re-boot, and you are away. Place a CD-ROM in the caddy, insert it, and open up the root directory of your drive, just as you would any other drive. In use the Sony drive in the Expansion Unit received for review seemed nice and fast, though comparison timings showed that the drive did not do *everything* at double the speed of a standard drive (a Sony CDU 541).

SPEED PERFORMANCE

Opening directories on CD-ROMs is generally a rather slow process, and I had hoped that the Expansion Unit would show an improved performance. Unfortunately it gave the same time for opening a directory containing 65 sprites as the standard drive. The only test where the new drive performed significantly better was in loading large files. In the example, I loaded a 690K sprite into Paint. Here the Faster drive loaded the sprite in only 60% of the time taken by the standard drive. But to keep things in perspective, this was still four times as long as my SCSI hard disc took to perform the same feat.

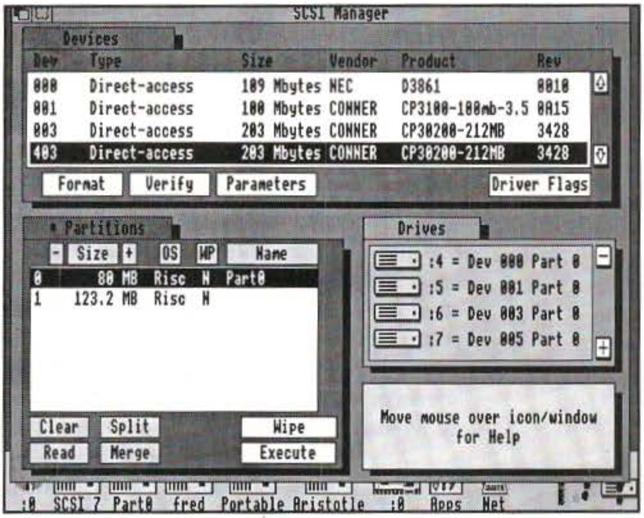
As these tests suggest, while the data transfer rate of the new drive is double that of a standard drive, it has virtually the same access time. This is why the new drive only appears to be faster when loading large files - with small files, more time is spent locating the file than actually loading it. Acorn are working on an upgrade to the SCSI filing system software which should result in faster directory opening times - and if successful, this will affect the performance of both normal and double-speed drives.

	Hard drive	Sony CDU 541	Exp Unit CDU 561
Load 690K sprite (Paint)	**0.9s**	**5.7s**	**3.5s**
Load 50K text file (Edit)	**0.2s**	**1.5s**	**1.5s**
Open Directory (65 sprites)	**0.2s**	**2.2s**	**2.2s**

Table 1.
Comparative timings for Conner SCSI hard drive, and normal and fast CD drives. Times are in seconds, with an ARM3 processor with the Desktop in Mode 21, and a 16 bit Acorn SCSI card.

AUDIO

The preamplifier in the unit also performed well, as did the large slider volume control on the front panel. The review unit also contained a prototype of Cumana's optional audio amplifier. This has a rated output of 5 watts per channel, and gave some distortion in the middle frequency range on the large speakers which I tested it on. But in defence of the unit, it is only really designed for use with small add-on speakers, and in any case the amplifier *was* only a prototype.



Dev	Type	Size	Vendor	Product	Rev
000	Direct-access	109 Mbytes	NEC	D3861	0010
001	Direct-access	100 Mbytes	CONNER	CP3100-100mb-3.5	0A15
003	Direct-access	203 Mbytes	CONNER	CP30200-212MB	3428
403	Direct-access	203 Mbytes	CONNER	CP30200-212MB	3428

	Size	OS	WP	Name
0	80 MB	Risc	N	Part0
1	123.2 MB	Risc	N	

:4 = Dev 000 Part 0
:5 = Dev 001 Part 0
:6 = Dev 003 Part 0
:7 = Dev 005 Part 0

Move mouse over icon/window for Help

Setting up the Expansion Unit

CONCLUSION

To conclude, Acorn's Multimedia Expansion Unit seems an excellent product for those wishing to get started in the rapidly expanding world of multimedia. It provides a fast Photo-CD compatible CD-ROM drive, together with audio control, and allows for further expansion. It sits neatly on top of or beneath the computer, and is priced very competitively. My only problem with it is that I did not get to hear about it before I bought my slow Photo-CD incompatible drive!

PRODUCT INFO

Product	*Multimedia Expansion Unit*
Supplier	*Acorn Computers Ltd* *Fulbourn Road* *Cherry Hinton* *Cambridge* *CB1 4JN* *Tel. (0223) 254 254*
Price	*£499 ex VAT* *£599 with SCSI interface*
Product	*Internal stereo amplifier*
Supplier	*Cumana Ltd* *Pines Trading Estate* *Broad Street* *Guildford* *Surrey* *GU3 3BH* *Tel. (0483) 503 121*
Price	*To be announced*

All About Fonts

Kell Gatherer demystifies Acorn's powerful outline font system.

At the heart of Desktop Publishing (DTP) is a new form of typeface - so-called *outline fonts* as used by the Archimedes. Their use has revolutionised the business of home/office publishing, and this article is intended to explain their importance and how they are constructed. The word 'font' has had a meaning in printing for countless centuries, and literally describes the wooden tray in which little metal blocks were kept - all the necessary characters and punctuation marks of the alphabet in a particular typeface and size. These days, the size of a typeface is practically irrelevant, since it can be electronically resized, so the word 'font' is now used to describe the typeface itself (e.g. Homerton or Trinity), or a 'family' of typefaces, such as Bold, Medium, Light and Italic versions of each.

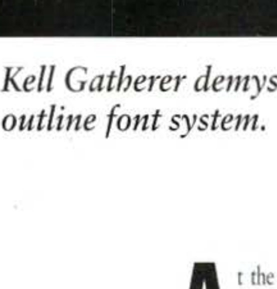


Figure 1. The system font

OUTLINE FONTS

For years, the only typefaces available on computers and their printers were bit-image fonts. The system font on the Archimedes screen is a *bit-image* font - it is mapped out in a pixel form on an 8x8 grid (figure 1). When seen at normal size on a computer screen, this is acceptable and highly legible, but not much good for printing. Various tricks are used on dot-matrix printers to turn the basic bit-image into an acceptable letter-form by overlapping the printed blobs to produce a type style - see figure 2.

But the inherent problem with bit-image fonts is that they cannot be rescaled with acceptable results; by the time each blob is 5mm across on a poster, for example, its computer origin is obvious and legibility suffers. The solution that has been adopted is to describe the outline of each character as a path in the same way that Draw describes a curve as a start point, two control points and an end point. In most instances this approach also saves on computer memory: the letter 'O' for example may be described by four bezier curves (15 or so bytes) as in figure 3a - to get the same style of character at an acceptable resolution at a height of 4 inches in a bit-mapped image would require 24K or so of memory (figure 3b).

So Archimedes fonts are stored in two files - one called *Outlines* which is literally a path description of each available character, and another called *IntMetrics* which holds information on the size and spacing of the characters. This information is *device-independent*, i.e. it is used both for printing and screen display. The outline information is processed into a bit-image, according to the available resolution of the output device.

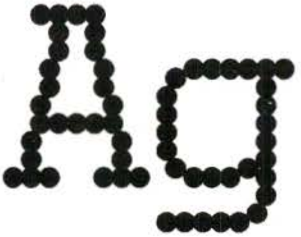


Figure 2. NLQ on a dot-matrix printer

PRINTER DISPLAY

Different printers vary in the resolution available - on a laser or bubble-jet, resolution is generally quoted in dots per inch (dpi). A usual spec is 300 dpi, but some laser printers offer 600 dpi, whereas professional image-setting machines generally use 1270 dpi and can go to 2540 dpi or higher. At these high resolutions it is impossible for the eye to see individual *blobs* of ink, and a curved line will look like a perfect curved line, totally different to its screen representation. A way of seeing this is to print a circle from Draw at different printer resolutions - at lower resolutions it is easy to see the individual blocks that make up the image (figure 4).

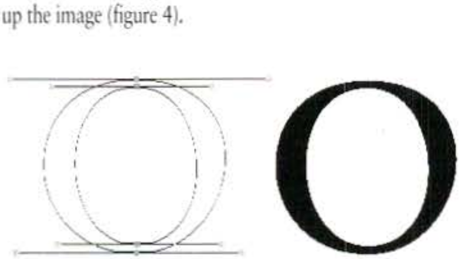


Figure 3a. **Figure 3b.**
Outline versus bit-image

It is the printer driver's job to translate outline font information into a bit-image map at the required resolution (though not so for PostScript printers where the bit image is constructed by the PostScript interpreter in the printer). The higher the resolution, the higher the amount of raw data that is sent to the printer; with some laser printers you actually need a full 4Mb of memory in the computer to cope with the size of the image that is sent to the printer.

SCREEN DISPLAY

The computer's VDU is a relatively low resolution display device; even a so-called high-resolution monitor can only offer a resolution of 100 dpi or so. Acorn's solution is to use a technique called *anti-aliasing* to improve the screen display (at this point it is worth mentioning that state-of-the-art anti-aliasing techniques became widely available on Acorn machines long before other manufacturers caught up - still today there are many DTP bureaus that don't have anti-aliasing screen displays).

HINTING

Anti-aliasing is a clever trick used by the Font Manager to improve the screen display - it is not used to assist with printing. If a new generation of monitors ever appears which can match the kind of definition available from a printer, anti-aliasing will become redundant.

Strictly speaking, the word pixel is used to describe the smallest display unit on the computer screen - however in practical terms it can also be used to describe the smallest blob of ink that can be printed by a printer. When printing a font, the translation of outline to the grid is done on a pixel-by-pixel basis - if more than 50% of a pixel is covered by the outline, that pixel is printed black, if less than 50% it is not printed. With high-resolution printing at normal type-sizes, this works fine, but at small character sizes or low resolution there can be a problem displaying the character properly. Consider the character 'n' in figure 7a - the two verticals are the same width in the outline, but they do not match the grid in the same way. As a result the left-hand vertical covers four pixels, but the right hand is only covering three.

The solution is for the outlines file to supply extra information to help align the character with the grid. The process is known as *hinting*, and appears in the form of *scaffolding lines*. These 'lines' are theoretical only, in the sense that they are not output to the screen or printer; they exist only as extra information contained within the Outlines file. An application called *FontEd* (copyright Acorn, but available from public domain libraries) may be used to examine scaffold lines - indeed this is the only way to 'see' them as such. Scaffolding is not essential to the rendering of a font: many public domain fonts do not have any scaffolding information at all.

A well-designed font, however, links sections of the outline characters to scaffold lines. When the Font Manager loads the character from the Outlines file, the scaffolding is used to optimise its appearance on the pixel grid. In a sense you can

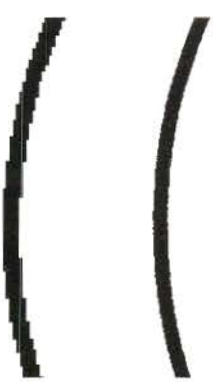


**Figure 4.
Printer resolutions**

ANTI-ALIASING

The VDU screen is a bit-image display - there is a finite number of *pixels* available which can display a range of colours or different shades of grey. When using the system font, the individual blobs match the pixel size, and a clear display results. But a proper typeface such as Trinity has far more detail (e.g. serifs) than can fit easily into the same 8x8 grid of dots. If you overlay the shape of the Trinity character 'A' on an 8x8 grid, the problem becomes clear - simply switching 'on' or 'off' individual pixels cannot adequately display the characteristics of the font (figure 5b).

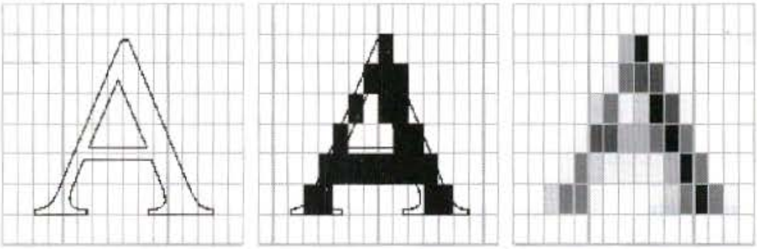


Figure 5a. **Figure 5b.** **Figure 5c.**
Anti-aliasing in action

The RISC OS Font Manager deals with this by regarding each pixel as being composed of theoretical sub-pixels. While the explanation below assumes black text on a white background, the Font Manager will work in any colour. It superimposes the outline of the character over a grid of pixels, then examines each pixel in turn. Depending on how much of the outline covers the pixel, it then chooses from a range of greys to display in each pixel. If none of the sub-pixels are covered, that pixel is shown as white; if one sub-pixel is covered, a light grey is shown, and so on until solid black is displayed, when all the sub-pixels are covered. When this is shown grossly enlarged as in figure 5c, it looks fairly illegible, yet if you hold this magazine at arm's length, to some extent it assumes the characteristics of Trinity Medium (although this is an extreme example). In use, anti-aliasing dramatically enhances the screen legibility of text. Use the Magnifier application (Apps disc 2) to see anti-aliasing in action.

imagine it like the 'snap-to-grid' feature in Draw - the outline is pulled up or down or sideways to fit the grid better. The amount of the shift may be absolutely minute - it could literally be one quarter of a pixel, i.e. one twelve hundredth of an inch on a laser printer! However shifting the outline like this ensures a better interpretation of the outline data - see figure 7b.

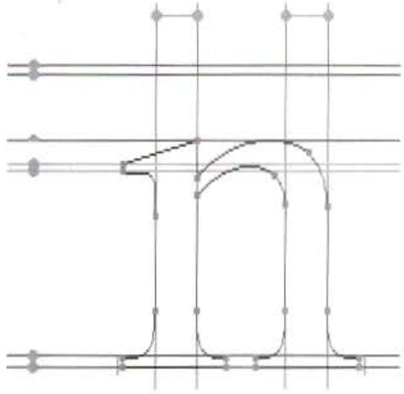


Figure 6. Scaffolding lines

Scaffold lines may also be linked, which helps maintain the proportions of characters. The letter 'E', for example, might have the top and bottom horizontal strokes linked, with the middle stroke tied between the two. When the character is rendered, the top and bottom strokes will first be adjusted to the grid, then the middle stroke adjusted to fit into its correct relationship between the two.

Another type of scaffold line assists in the depiction of curves. The computer has a tendency to display rows of pixels in a straight line at the apex of a curve, or worse, draw a 'pip' (single pixel). Tangent scaffold lines even out the pixel distribution at the extreme of the curve.

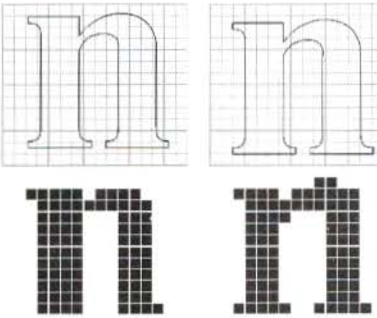


Figure 7a. Figure 7b.
Grid alignment

SKELETON LINES

Another problem occurs with very thin fonts. It can happen that a particular part of a line might be so thin that it doesn't fall across a pixel centre, so in the normal course of events it wouldn't be printed. A skeleton line is an unclosed line inside the main outline which doesn't print, but which forces pixels 'on' so that even the thinnest line will always print properly (figure 8). The 'full character' window in FontEd may be used to see this in operation - at very small character sizes, parts of the character will be seen to disappear unless there is a skeleton line holding it in place.

RISC OS 3

The new operating system arrived with a brand new Font Manager built into ROM, and with many more tricks up its sleeve than was the case with RISC OS 2. The most visible difference is that text strings may now be rotated (and edited in Draw). Screen update is handled differently, and looks subjectively quicker. The most exciting development, however, is the provision of font kerning tables.

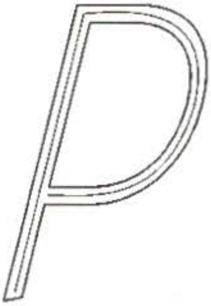


Figure 8. Skeleton lines

Figure 9 illustrates the spacing problems that can occur with fixed-width characters - there is a gulf of empty space between the 'A' and 'V'. Kerning tables actually provide three different widths for each character, and when the spacing is worked out, the characters are butted together in a much more natural. So far, software has not become available which can create fonts with kerning tables, but no doubt it will in due course. In any case, there's precious little software out there that can actually make use of the kerning information, although Impression 2.5 is expected to when it is released this summer.

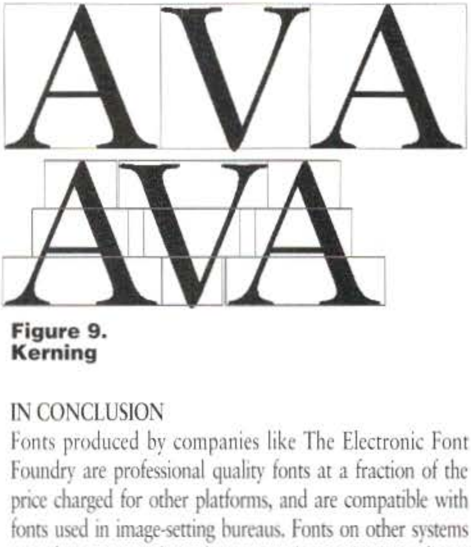


Figure 9. Kerning

IN CONCLUSION

Fonts produced by companies like The Electronic Font Foundry are professional quality fonts at a fraction of the price charged for other platforms, and are compatible with fonts used in image-setting bureaus. Fonts on other systems are often encrypted, to discourage the production of new fonts or the alteration of existing ones, whereas Acorn actively encourages the production of fonts by making its Font Editor freely available. In the DTP field the Archimedes has certainly proved itself to be a serious contender, and at a fraction of the cost of comparable systems.

In the concluding article we'll be looking at how to configure your machine to optimise the display of outline fonts, and provide an introduction to the business of font design.

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The RISC OS 3 Programmer's Reference Manual

David Spencer looks at this long-awaited tome.

A mere eighteen months after the launch of RISC OS 3, Acorn have updated the Programmer's Reference manual to cover the new operating system. Was it worth the wait?

Like its predecessor, the new PRM consists of four volumes plus a separate index in a slip-case. The new PRM is also supplied with a piece of cardboard - more of which later! However, unlike the old PRM, the new offering has scrapped the wire-binding style in favour of perfect binding (normal book style). My guess is that this is the only way that Acorn could meet the promised price. It does, however, make it harder to keep the books open on your desk, particularly near the front or back of a volume.

THE CONTENT

The arrangement of information in the new PRM is somewhat better organised than its predecessor, though the style of chapters has been kept very much the same. For those who haven't seen the older PRM, the general chapter format is a an introduction followed by a brief overview, a more technical description, a run down of all the relevant system calls, and finally, in some cases, examples and further information. These examples are more plentiful than in the old PRM - a fact that will be welcomed by many. Another nice touch that has been added is cross referencing to relevant sections, including page numbers.

The new PRM is split into fourteen sections:

1.	Introduction	194
2.	The Kernel	292
3.	Kernel input/output	461
4.	Using filing systems	518
5.	Writing filing systems	88
6.	Networking	139
7.	The Desktop	332
8.	Non-Kernel input/output	220
9.	Printing	182
10.	Internationalisation	113
11.	Sound	80
12.	Utilities	32
13.	Hardware support	98
14.	Programmers' Support.	142

The numbers after each title are the number of pages in each section. All the sections are split into a number of chapters - 85 in all. In addition to these sections, there is an extensive set of appendices and tables covering specific areas, such as file formats. The total page count is in excess of 3200 pages.

Most of the section heading should be self-explanatory. Non-kernel input/output refers to modules such as the Font Manager, ColourTrans and the Draw module. The Utilities section handles areas that don't fit anywhere else, for example the Squash module and the screen blanker. Finally, The Programmer's Support section deals with the likes of the Shared C library.

One welcome addition is an appendix on registering module and application names (and other related names). This should prevent the situation of two applications clashing, because, for example, they load two different modules, but both with the same name.

Finding information in the PRM is relatively painless. The chapter names in the contents list, which is repeated in each volume, are descriptive enough to get to within a few pages of the correct place in most instances. For a more definite reference, the separate index is very comprehensive. Not only does it contain a conventional alphabetical index, but also indexes of star command, OSByte and OSWords call, SWI calls and service calls. The latter two are listed both in numerical and alphabetical order.

THE RISC OS STYLE GUIDE

I mentioned earlier the piece of cardboard. This is in fact supposed to be a copy of the new RISC OS Style Guide, but it isn't quite ready yet according to Acorn. Instead, you get a postcard to send off in return for which the Style Guide will be sent when ready.

For people who don't know, the Style Guide, as its name suggests, covers the style that applications should adopt, rather than the technicalities of how they should do it. Originally, some of this information was included in the old PRM, and then this was extended into the original Style Guide. However, very few people bought this and it meant that a plethora of differing styles were adopted, particularly by non-mainstream developers. Obviously Acorn want to unify things by giving everybody who buys the PRM a new Style Guide as well. This new guide includes details of the recent 3D additions to RISC OS. The success of this approach is doubtful, as I know of several developers who would argue that a piece of cardboard is of more use than the Style Guide!

WHO NEEDS IT?

It is worth outlining just who the PRM is aimed at, because in the past there has always seemed to be some confusion on this point. The key to this is in the title. The PRM is a reference work. In no way is it intended as a tutorial guide in programming at any level. Nor does it contain any information of direct relevance to the user as opposed to programmer. The PRM is also biased entirely towards the RISC OS environment, and not to any particular programming language. Therefore, for example, it won't tell you details about writing applications in C or Basic in any great depth. For this information you have to refer to the appropriate language guide. Finally, no details of the hardware of particular machines is given. These details can be found in the relevant Technical Reference Manual.

Having said all that, the PRM really is a vital work for any programmer who wants to take advantage of anything but the very basic features of RISC OS. Certainly, it is essential for anyone wanting to write fully compliant desktop applications.

THE PRM ON CD ROM

As well as the printed version, Acorn plan to release the new PRM in a CD ROM format. This will appeal to people who have access to a CD ROM drive, as it will allow easy searching for particular topics. Network users will benefit considerably, as it is easier to access a shared CD ROM than it is to move a heavy mass of paper around.

CONCLUSIONS

With a reference book like the PRM, it is almost impossible to say whether it is good or bad, as you could, for example, with a tutorial guide. What can be said is that the PRM covers just about every feature of the operating system in as much depth as would ever be needed. There are, however, some features that are important, but which aren't actually part of the RISC OS ROMs, that I felt could be documented. For example, the Socket-level interface into the TCP/IP and AUN software is something that programmers may well need to know about in the future, but there is no mention of it. On the other hand, subjects such as the Terminal Interface Protocol which is unlikely to be of use to anyone, is documented in detail.

PRODUCT INFO

Product	*RISC OS 3 Programmer's Reference Manual*
Supplier	*Acorn Computers Ltd* *Fulbourn Road* *Cherry Hinton* *Cambridge* *CB1 4JN*
Price	*£99 (no VAT)* *£59 upgrade from old PRM*

(see News pages in RISC User 6:8 for details)

One moan I can hear people coming up with is the price of £99. Whilst this does at first seem a little on the high side, you do get an awful lot of information for your money. Additionally, compared with similar manuals for machines such as the Apple Macintosh and even the Commodore Amiga, the RISC OS PRM is cheap. It is also available to everyone - some manufacturers will only supply such information to bona-fide developers.

For the first time, Acorn are offering an very good upgrade deal for owners of the RISC OS 2 PRM. The cost to them is just £59, a saving of £40. To qualify for this upgrade you must hand in the front cover of the index volume from the RISC OS 2 PRM. The upgrade can be ordered through Beebug.

Visual Disc Cataloguer

by Keith Vernon and Alan Wrigley

The Visual Disc Cataloguer presented here enables you to keep a visual record of the root directory of any floppy disc. The record takes the form of a directory (which would usually be kept on your hard disc). When this directory is opened, it looks just like the root directory of the floppy, though it contains no data.

Even if you have a hard disc available, you may still find that you need a large collection of floppies as well, perhaps a set of magazine discs, or infrequently-used resources that don't warrant valuable space on the hard disc. Keeping track of what is on all these discs can become a headache. Programs have been published in the past which catalogue floppy discs - a good example is the *Floppy Disc Library Utility* in RISC User 5:2, which compiles a directory of zero-length images of all the files on the disc which can then be used as a visual reminder of the disc's contents.

Unfortunately, the latter program does not store the sprites associated with applications, with the result that when the directory is viewed, all applications are shown with Acorn's standard default icon, and errors may be generated as the operating system looks for the sprite in order to perform an *IconSprites*. For many users the icon sprite serves as a more immediate visual reminder of the application's purpose than its name; also, it is usually only necessary to see the root directory of a floppy to determine the nature of its contents.

For these reasons, the application listed here, *CataFlop*, is presented as a faster and simpler alternative to the method adopted by the Floppy Disc Library. It only catalogues the root directory of each floppy disc, but it retains the filetype of each object as before, and where the object is an application it stores the application's icon in a *!Sprites* file. As a result, whenever the catalogue directory is viewed the application is shown with the correct icon.

CREATING THE APPLICATION

First of all create an application directory called *!CataFlop*, and save inside it a sprite file called *!Sprites* which contains a 34x17 pixel mode 12 sprite of your own design (using Paint) called *!cataflop*. Next you should use a text editor such as Edit to create an Obey file containing the following lines:

```
WimpSlot -min 32k -max 32k
Run <Obey$Dir>.!RunImage
```

This should be saved as *!Run* inside the *!CataFlop* directory. Finally you should type in Listing 1 and save it as *!RunImage* in the same directory.

USING CataFlop

To catalogue a floppy disc, first insert it into drive 0, then run CataFlop by double-clicking on its icon in a directory viewer. A directory will be created in the RAM filing system which has the same name as the floppy disc, and which contains files and/or directories which duplicate all the objects in the root directory of the floppy disc. Any files in the new directory are simply zero-length files with the same name and filetype as the original, while directories have the same name as the original but are empty. In the case of applications, CataFlop looks to see if the original has a !Sprites file. If so, and if that file contains a sprite with the same name as the application, a !Sprites file containing that sprite only is saved inside the application in the catalogue directory on the RAM disc. Thus when the catalogue directory is accessed in the future, any applications will be shown with the correct icons.

As well as the files and directories showing the contents of the disc, the catalogue directory will contain a text file called *Details*, which gives the disc name and its root directory contents in ASCII format. This can then be dropped into a database or text editor if required.

Once the cataloguing process is complete, the catalogue directory can be moved from the RAM disc to a permanent home on your hard disc or wherever you want to keep it. The RAM disc has been used in CataFlop so that users without a hard disc can still use the program to store visual records on floppy discs, but if you are using a hard disc you will find it quicker and more convenient to alter lines 100 and 200 by replacing "RAM::0.$" with a pathname of your own choosing.

An error will be generated if the RAM filing system is not present, or if the RAM disc becomes full before the cataloguing is complete.

Listing 1

```
   10 REM           >!RunImage
   20 REM Program   Disc cataloguer
   30 REM Version   A1.00
   40 REM Author    Keith Vernon
   50 REM RISC User August/September 1993
   60 REM Program   Subject to copyright
   70 REM           Not Public Domain
   80 :
   90 file%=0:ON ERROR PROCerror:END
  100 *Filer_OpenDir RAM::RamDisc0.$
  110 SYS "Hourglass_On"
  120 DIM buff% 1000,temp% 10,name$(76)
  130 DIM user% 10000:!user%=10000
  140 user%!8=16
  150 SYS "ADFS_DescribeDisc",":0"+CHR$0
,buff%
  160 a$="":n%=buff%+22:REPEAT
  170 a$+=CHR$?n%:n%+=1
  180 UNTIL ?n%<33 OR LENa$=10
  190 flop_name$=a$
  200 dest_root$="RAM::0.$."+flop_name$
  210 SYS "OS_File",8,dest_root$
  220 SYS "OS_GBPB",9,"ADFS::0",buff%,77
,0,1000,"*" TO ,,,n%
  230 ptr%=buff%:FOR i%=0 TO n%-1
  240 name$(i%)=FN_get_string
  250 NEXT
  260 FOR i%=0 TO n%-1
  270  src$="ADFS::0.$."+name$(i%)
  280  dest$=dest_root$+"."+name$(i%)
  290  SYS "OS_File",5,src$ TO obj%,,R2%
  300  IF obj%=1 type%=(R2% AND &FFF00)>
>8 ELSE type%=&1000
  310  IF obj%=2 AND LEFT$(name$(i%),1)=
"!" type%=&2000
  320  CASE type% OF
  330   WHEN &2000:SYS "OS_File",8,dest$
  340   SYS "OS_File",5,src$+".!Sprites"
 TO file_exists%,,,,size%
  350   IF file_exists% THEN
  360    IF size%<=10000 THEN
  370     sparea%=user%:rma%=FALSE
  380    ELSE
  390     SYS "OS_Module",6,,,size% TO ,
,spr%
  400     sparea%=spr%:rma%=TRUE
  410     !sparea%=size%+4:sparea%!8=16
  420    ENDIF
  430    appname$=FN_lower(name$(i%))
  440    SYS "OS_SpriteOp",256+9,sparea%
  450    SYS "OS_SpriteOp",256+10,sparea
%,src$+".!Sprites"
  460    SYS "OS_SpriteOp",256+8,sparea%
 TO ,,,numsp%
  470    sprite_exists%=FALSE
  480    FOR k%=numsp% TO 1 STEP -1
  490     SYS "OS_SpriteOp",256+13,spare
a%,buff%,1000,k%
  500     ptr%=buff%:sp_name$=FN_get_str
ing
  510     IF sp_name$=appname$ THEN
  520      sprite_exists%=TRUE
  530     ELSE SYS "OS_SpriteOp",256+25,
sparea%,sp_name$
  540     ENDIF
  550    NEXT
  560    IF sprite_exists% SYS "OS_Sprit
eOp",256+12,sparea%,dest$+".!Sprites"
  570   ENDIF
  580   IF rma% SYS "OS_Module",7,,spr%
  590   WHEN &1000:SYS "OS_File",8,dest$
  600   OTHERWISE
  610   SYS "OS_File",11,dest$,type%,0,0
  620  ENDCASE
  630 NEXT
  640 text$=dest_root$+".!!Details"
  650 file%=OPENOUT text$
  660 BPUT#file%,"Disc name: "+flop_name
$
  670 FOR i%=0 TO n%-1
  680 BPUT#file%,"  "+(name$(i%)):NEXT
  690 CLOSE#file%:file%=0
  700 SYS "OS_File",18,text$,&FFF
  710 SYS "Hourglass_Off"
  720 END
  730 :
  740 DEF PROCerror
  750 CASE ERR OF
  760  WHEN 248
  770  PRINT'"RAM disc not present"
  780  WHEN 71622:PRINT'"Insufficient RA
M space available"
  790  OTHERWISE
  800  REPORT:PRINT" at line ";ERL
  810 ENDCASE
  820 IF file% CLOSE#file%
  830 SYS "Hourglass_Smash"
  840 ENDPROC
  850 :
  860 DEF FN_lower(a$)
  870 $temp%=a$:FOR a%=1 TO LENa$
  880 b%=temp%?a%
  890 IF b%>64 AND b%<91 b%=b% OR 32
  900 temp%?a%=b%:NEXT
  910 =$temp%
  920 :
  930 DEF FN_get_string
  940 n$="":REPEAT n$+=CHR$?ptr%
  950 ptr%+=1:UNTIL ?ptr%=0:ptr%+=1
  960 =n$
```

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Background Filer Operations in RISC-OS 3

Keith McAlpine shows how programmers can take advantage of the new background Filer operations.

RISC OS 3 contains a very powerful and flexible set of commands for manipulating files on the Desktop as background tasks. These tasks allow you to use the Desktop even while lengthy file operations occur - formatting a disc or copying a number of files from the Desktop can show this feature in operation. This article describes how your own programs can take advantage of these Filer background processes. The two program segments used as examples are in C, but the article is equally relevant to Basic and assembler users.

The central module relating to background Filer processes is the Filer_Action module. This module contains one star command and three SWI calls for manipulating the Filer tasks. These commands are:

**Filer_Action*
This command is used to start a new background Filer task from within the Desktop, and should be called from within a Wimp_StartTask SWI.

FilerAction_SendSelectedDirectory (SWI &40F80)
This is used to inform the Filer which directory contains the files to be manipulated.

FilerAction_SendSelectedFile (SWI &40F81)
This specifies a list of files on which some operation is to be carried out.

FilerAction_SendStartOperation (SWI &40F82)
This SWI is used to send a message telling the background task to start a specific operation, namely one of the standard Filer commands - copy, move, delete, etc.

To use these SWIs, you must first be running a Wimp application from the Desktop. To set up a background Filer task, call:

```
Wimp_StartTask("Filer_Action");
```

and store the returned task handle in a variable. The Filer task needs to know which directory the file operations are to occur in, and then a list of leafnames to be operated on. For example, to delete the two files:

```
ADFS::IDEDisc4.$.Text.File1 and
ADFS::IDEDisc4.$.Text.Ex1
```

the SWI "FilerAction_SendSelectedDirectory" is passed the name ADFS::IDEDisc4.$.Text, and SWI "FilerAction_SendSelectedFile" is passed the list:

```
File1 Ex1
```

Finally, the appropriate Filer action is initiated with a call to SWI "FilerAction_SendStartOperation" which specifies the type of operation which is to be performed on the selected files.

Internally, these SWI calls actually send various messages to the Filer in a similar fashion to the Filer_OpenDir and Filer_CloseDir messages. These messages are:

```
&403 Message_FilerSelectionDirectory
&404 Message_FilerAddSelection
&405 Message_FilerAction
&406 Message_FilerControlAction
```

These messages and their protocols are explained in detail in the RISC OS 3 Programmer's Reference Manual (vol 3 pp. 235-237), but do not actually need to be understood in order to use the Filer background tasks.

The best way to explain the use of these commands is through the use of some example code fragments. These routines were used to implement a simple dustbin for the Desktop, similar to that on the Macintosh and to the RISC User Dustbin (see the 5:1 disc). That is, files dropped onto the bin are not deleted, but simply copied to another directory, from where they are deleted by the use of a menu option. Thus the ICONBAR_Load routine (for when a file is dropped onto your icon bar icon) looks like that shown in listing 1.

FilerAction PARAMETERS

A brief description of the FilerAction SWIs and their related register parameters now follows.

FilerAction_SendSelectedDirectory and FilerAction_SendSelectedFile each have two parameters passed in, with no values returned. The first parameter (r0) is the same for both SWIs, and contains the task number, as returned from *Wimp_StartTask()*. The second parameter (r1) contains a pointer to a null-terminated directory name for FilerAction_SendSelectedDirectory, or a pointer to a null-terminated space-separated list of leafnames.

FilerAction_SendStartOperation uses up to five parameters, depending on the file operation which is to take place.

r0 contains the task number, as returned from *Wimp_StartTask()*, while r1 contains a reason code for which operation to perform (described below). r2 changes the Filer option bits, as follows:

bit	meaning when set
0	Verbose
1	Confirm
2	Force
3	Newer
4	Recurse (only for Access operations)

r3 contains a pointer to operation-specific data, while r4 contains the length of this data. Both parameters have different meanings depending on the reason code set in r1 (see table 1).

These options can easily be implemented as in the code fragment in listing 1. The list of files to be manipulated can also be created using OS_GBPB. For example, to select all the files in a specified directory we could use the code in listing 2.

This month's disc contains the Trashcan application, complete with its documented C

r1	*reason code*	*r3*	*r4*
0	Copy	pointer to null-terminated name of destination directory	length of destination directory (including NULL character)
1	Move (rename)	pointer to null-terminated name of destination directory	length of destination directory (including NULL character)
2	Delete	not used	0
3	Set access	pointer to word with new access Bottom 2 bytes = values to set Top 2 bytes = bits to leave alone	4
4	Set type	pointer to word containing new type in bits 0 - 11	4
5	Count	unused	0
6	Move (copy & delete)	pointer to null-terminated name of destination directory	length of destination directory (including NULL character)
7	Copy inside directory	pointer to null-terminated destination name	length of destination name (including NULL character)
8	Stamp files	unused	0
9	Find file	pointer to null-terminated name of object to find	length of object name (including NULL character)

Table 1

Listing 1. Code to copy n files to another directory

```
#define kFiler_Move   1              /* code for a file move operation */
#define kFileOp_Flags 0x04     /* code for ~V ~C F ~N ~R move options */

static char* kBinDir = "<Trash$Dir>.TheBin"; /* directory for our bin */

void FileDropOnBin(wimp_etype reason, wimp_msgstr* msg)
{
 if ((reason==wimp_ESENDWANTACK) && (msg->hdr.action==wimp_MDATALOAD))
 {
         /* file(s) to delete have been dropped on our icon bar icon  */
  char  parent[230];    /* temp buffer to store the directory name in */
  char* fileToMove;     /* pointer to the leafname of the file to move */
  char* truncate;/* used to find position of the last '.' in filename */
  int   task;    /* used to store the returned background task handle */
  int   dirLength = strlen(kBinDir) + 1;/* length of destination name */

                  /* copy the filename from the msg to our own buffer */
  strcpy((char*) &parent, msg->data.dataload.name);

                          /* send our reply acknowledging the message */
  msg->hdr.action = wimp_MDATALOADOK;
  msg->hdr.your_ref = msg->hdr.my_ref;
  wimp_sendmessage(wimp_EACK, msg, msg->hdr.task);

     /* break off the leafname from the full pathname so that we have:
   dirname>[^0]<leafname>[^0] - eg ADFS::IDEDisc4.$.Text[^0]File1[^0] */

  truncate = strrchr(parent, '.');  /* find the rightmost '.' in name */
  fileToMove = (char*) (truncate + 1);/* the leafname points after it */
  truncate[0] = NULL;        /* and the '.' then gets changed to a ^0 */

    /* time to send the FilerAction SWIs - first start the Filer task */

  os_swi1r(XOS_Bit | Wimp_StartTask, (int) "Filer_Action", &task);

                 /* Say what directory and file we want to operate on */
  os_swi2(XOS_Bit | FilerAction_SendSelectedDirectory,task,(int)&parent);
  os_swi2(XOS_Bit | FilerAction_SendSelectedFile, task, (int)fileToMove);

      /* Now start off the operation >> parameters explained later << */
  os_swi6(XOS_Bit | FilerAction_SendStartOperation, task,
          kFiler_Move, kFileOp_Flags, (int) kBinDir, dirLength, 0);
 }
}
```

Listing 2: Routine to create a space-separated list from a null-separated list

```
static char gFileList[1024];          /* buffer to store our files in */

void GetFiles(char* directory)
{
 os_regset regs;
 char*     posInList;
 int         n;

 regs.r[0] = 9; /* code to read in just leafnames (NULL between each) */
 regs.r[1] = (int) directory;               /* directory to read from */
 regs.r[2] = (int) &gFileList; regs.r[3] = 255;/* buff to store files */
 regs.r[4] = 0; regs.r[5] = 254; regs.r[6] = 0;

 os_swix(XOS_Bit | OS_GBPB, &regs);     /* read in the directory info */

                    /* now change all the NULLs in the list to spaces */
 for (n = 1; n < regs.r[3]; n++)
  posInList[strlen(gFileList)] = ' ';/* find ^0 and change to a space */
}
```

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POEM 500

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3D CAD FOR THE ARCHIMEDES

Just a Page

A page full of short programs and procedures.

SHUTDOWN REMINDER

Alan Wrigley

It can often be very useful to have an automatic reminder appear on the screen when you close down the Desktop prior to switching off the computer - for example, "Switch off printer!". Unfortunately the usual "ready to be switched off" message isn't in a Messages file in the Resources filing system, so you can't just alter it. However, you *can* install a very simple application which does nothing except detect a shutdown sequence and perform some action before the shutdown takes place. This could just be to generate an error message of your own choosing, or to carry out some other operation (with the appropriate hardware you could switch the printer off automatically, for example!).

The application's !RunImage program is given below. It will only work with RISC OS 3. It should be packaged up into an application in the usual way, with a WimpSlot of 8K to ensure it takes up as little space as possible. You can replace the error generation in lines 190-210 with your own choice of action.

```
   10 REM Shutdown reminder
   20 REM by Alan Wrigley
   30 :
   40 DIM bk% 255,list% 3
   50 !list%=0:name$="Warn":quit%=0
   60 SYS "Wimp_Initialise",310,&4B53415
4,name$,list%
   70 REPEAT
   80  SYS "Wimp_Poll",&1833,bk% TO r%
   90  CASE r% OF
  100   WHEN 17,18:PROCmessage
  110  ENDCASE
  120 UNTIL quit%
  130 SYS "Wimp_CloseDown":END
  140 :
  150 DEFPROCmessage
  160 CASE bk%!16 OF
  170  WHEN 0:quit%=TRUE
  180  WHEN 8:IF (bk%!20 AND 1)=0 THEN
  190     !bk%=1
  200     $(bk%+4)="Turn off printer!"+CH
R$0
  210     SYS "Wimp_ReportError",bk%,1,na
me$
  220    ENDIF
  230  ENDCASE
  240 ENDPROC
```

DRAG A SPRITE ON/OFF

Lee Calcraft

As you may know, a special feature of RISC OS 3 allows the solid dragging of sprites. For example if *DragASprite* is set on your machine, and you drag the icon in Paint's Save dialogue box, it will be dragged as a solid icon rather than just a dashed outline.

The following two short Basic programs will switch this feature on or off in any RISC OS 3 machine. Just type in the two programs (separately!) and save them with names such as *DragSprON* and *DragSprOFF*. Then just double-click on their icons in your directory viewer (or from the Pinboard) to bring them into play. But remember, only applications which know about *DragASprite* will respond.

```
   10 REM >Drag a sprite - Set
   20 REM by Lee Calcraft
   30 :
   40 SYS 6,161,28 TO ,,value
   50 SYS "OS_Byte",162,28,value OR %10
   60 SOUND 1,-15,70,1
```

```
   10 REM >Drag a sprite - UnSet
   20 REM by Lee Calcraft
   30 :
   40 SYS 6,161,28 TO ,,value
   50 SYS "OS_Byte",162,28,value AND %11
111101
   60 SOUND 1,-15,200,1
```

WHICH VERSION ?

Lee Calcraft

If you create a Basic program containing just one line, as follows:

```
   10 *FX0
```

double-clicking on its icon in a directory viewer will display an error box giving the date and version number of your operating system. Of course, you can do it from the command line but this is neater.

This is probably the shortest useful Basic program (of all time?). You can also derive one of the shortest useful Obey files from this:

```
   FX0
```

Please drop us a line if you have suitable programs or procedures for this column. Any program that will fit on a page could qualify. All contributions will be paid for.

Action Replay

Irlam's Replay DIY kit brings movie-making within reach of the average user. Alan Wrigley becomes a movie mogul for a day.

Most readers will by now have heard of or even used Acorn's *Replay* system, which was designed to display movie sequences on the Desktop. In this system, data which has been captured from a live or recorded video source is cleverly compressed into a file, which can be replayed at 12.5 frames per second (25 fps is also possible if your hardware is fast enough). This enables very impressive-looking movie sequences (though a little on the grainy side) to be played directly from hard disc or CD-ROM.

Although the ability to display moving images on a personal computer at all is a considerable technological achievement, the capture of standard video data in the first place is beyond the capabilities even of the Archimedes. Until now, the only way to create a Replay movie has been to enlist the services of a professional video company (and pay professional-sized costs). Irlam's system, developed in conjunction with Acorn, breaks new ground by reducing the video and audio bandwidth in the incoming signal, and allowing anyone with an appropriate RISC OS computer and a video recorder or camera to create movies simply by installing a single-width expansion card. "Appropriate" in this context means an A540 or A5000, or a 300/400 series with a fast hard disc (and plenty of free space on it!) and an ARM3. 2Mb is the minimum RAM requirement, and 4Mb is preferable.

REPLAY DIY IN USE

Once the expansion card has been installed in the usual way, it must be connected up to your video source. A BNC socket is provided for the video input, and two phono sockets for stereo audio. Most video cameras and recorders have similar outputs, and leads are widely available to connect the two. I used a a Panasonic camcorder to test the product, and everything worked perfectly first time. Two accompanying discs contain a number of software applications, each of which performs a different function in the process of converting your video source material into a Replay file. The first application you need to use is called *ReplayDIY*. This opens a window covering about a quarter of the screen, in which initially the output from the video source is displayed. At the foot of the window is a row of video recorder-style buttons, and to start recording a movie, you just press the *Record* button - it's as simple as that.

When you press the *Stop* button, you will find an uncompressed video file on your hard disc that has eaten up a prodigious amount of free space - 21Mb per minute of recording, to be precise. This is a ViA file (video interlaced with audio). This is an intermediate stage in the production of a Replay movie, but before compressing it into its final version, the ViA file itself can be modified. It can be played back using ReplayDIY, whereupon it will be shown in the window, and you can edit it by dubbing another source onto it, either video or audio or both. This enables you, for example, to dub a soundtrack onto an existing movie sequence; to extend a sequence by dubbing both video and audio onto the end of it; or to replace sections of the original by dubbing over them.

Once you are satisfied with the sequence, you then move on to the next stage, which is to install the *ViatoRepl* application supplied. This takes the ViA file and compresses it into a Replay file, ready to be played with the ARM Movie player which is the standard method of playing Replay files (and is also supplied with Replay DIY). The ViA-to-Replay process is not multi-tasking, and takes an age - up to two hours for a minute of movie time. Still, you only have to do it once, and the whole thing is a lot faster (and cheaper!) than sending your video cassette away to a professional studio. The process also requires yet more hard disc space - up to as much again as the size of the original ViA file.

The good news is that after the process has finished, your 21Mb-per-minute ViA file has shrunk to a 4.5Mb-per-minute Replay file. Be warned, though, that the ViA file will disappear in the process and cannot be reconstituted, since a so-called lossy compression technique is used (i.e. some of the information is lost during the compression process). You could of course make a copy of the ViA file first, but there isn't space for too many of these on the average hard disc. I understand, though, that the *Empire* system marketed by Uniqueway has a facility to convert Replay files back into ViA format, albeit without the lost data of course.

4.5Mb probably still seems like a frighteningly large chunk of memory. In fact, a minute of movie time is very long indeed, and most movie clips are much shorter than this. For most purposes, ten seconds is quite adequate, and very conveniently this is about the maximum size that will fit onto a single-density floppy disc.

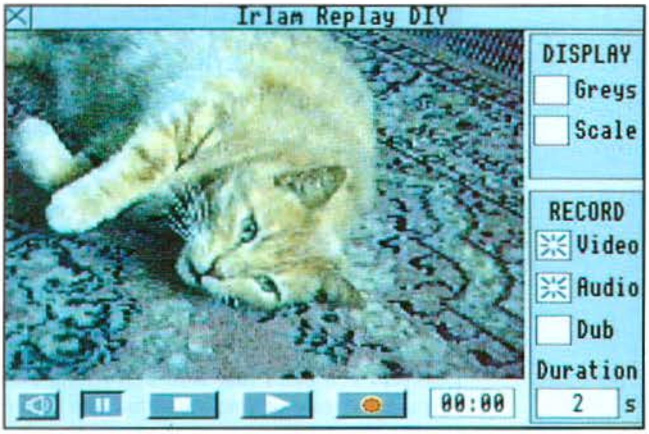
NO WEEPIES

If the whole process of producing a Replay movie sounds amazingly simple, that's because it is. There is no steep learning curve, no head-scratching while you work out what does what, and no thick jargon-filled manual (all you need to know is described succinctly in ten pages plus a glossary). In the words of the cliché, it's so simple that a child could use it ... which is just as well since education is clearly the market at which this product is aimed. Pupils working on multimedia projects can now point a video camera at the subject, and have a movie up and running in Genesis, for example, in a few minutes.

As an added bonus, single frames can be captured from the input source and saved as sprites, so the system doubles as a colour digitiser.

The main problems with a product such as this when used on an average educational or domestic machine are the huge memory requirements, and the fact that the system is working to the limits of its capabilities. To do any serious work, you need to start with a large, half-empty hard disc. Given that most people tend to underestimate their future storage requirements when buying a computer, I doubt if there are many of those around! However, if schools and other establishments are serious about making full use of their computers, this is a problem that has to be addressed, since many present-day computer applications require memory in quantities unheard of a few years ago.

Although the Archimedes with an ARM3 is a wonderfully fast machine, its limits are shown up in two ways by Replay DIY. Firstly, although the ReplayDIY application is multi-tasking, in order to get the image on the screen fast enough to be of any use, it has to write directly to the screen rather than use the standard Wimp screen redraw routines. For this reason, the ReplayDIY window always has to be kept at the front of the stack - open another window or a menu in front of it and it promptly disappears behind. This makes it difficult to use other applications at the same time. The second problem is that occasionally the sound disappears when playing the video source through ReplayDIY. This happens when the sound system just can't keep up with the demands made on it. You can get the sound back by moving the window, but this isn't mentioned in the manual and I only found out by accident. Irlam has now agreed to make this point clear in production versions of the manual.



Replay DIY in action on the desktop

I mentioned earlier that the Replay system is also designed to support movies running at 25 frames per second. At present, Replay DIY cannot handle these - it needs an A540 or A5000 just to play a 25 fps movie, let alone create one, and since most schools are still largely reliant on their trusty old A3000s, there would be little point in creating movies that can't be played. Nevertheless, for those who *can* take advantage of the faster standard, Irlam plans to release an upgrade to Replay DIY some time in the future to cater for 25 fps. This does not in any way suggest that 12.5 fps is a poor relation - it is quite capable of producing stunning results if the original material is good.

PRODUCT INFO

Product	*Replay DIY*
Supplier	*Irlam Instruments* *Brunel Institute for Bioengineering,* *Brunel University,* *Uxbridge UB8 3PH.*
Tel.	*0895 811401*
Price	*£293.75 inc. VAT*

In conclusion, if you want to produce Replay movies, this product is ideal and should become a standard item of equipment in many schools.

Wimp Topics - Debugging with the Task Window

Alan Wrigley describes some debugging techniques with the help of routines by Roderick Ferguson.

Recent articles in RISC User have looked at the subjects of task windows (6:6) and PipeFS (6:8). This month's *Wimp Topics* will bring these two useful features of RISC OS 3 together to show how they can be used to provide a handy method of debugging Basic Wimp programs. Information can be sent from a program under development, while it is running, to a pipe file and thence to a second program running in a task window, which displays the information on the screen. As anyone who has ever written a multi-tasking program knows only too well, debugging can be an enormous problem. When something goes wrong on the Desktop, you can't just stop everything and examine the state of your variables. And as for tracing the progress of your program using Basic's TRACE command, you might as well forget it since in a multi-tasking environment there is nowhere for the output to appear.

Enter the task window. As explained in *Using the RISC OS 3 Task Window* (RISC User 6:6), it is possible to create a Basic environment on the Desktop which multi-tasks with other applications. Couple this with the facility to use PipeFS to transfer data from one application to another (see *PipeFS and Filer_Run*, RISC User 6:8), and you have all the tools you need to construct a versatile debugging system. You can print out variable values in the task window, for example, or even run a redirected trace (i.e. display the line numbers currently being executed) using the extended TRACE command in the RISC OS 3 version of Basic. This provides the additional syntax:

```
TRACE TO <string>
```

which directs the trace to a stream defined in the parameter *string*. This could be a file, a device such as "Printer:" (which would give a running printout of the trace), or most usefully for our purposes, a pipe. If this pipe is then read by a second program running in a task window, the trace output will appear on the screen while the main program is running.

Once a stream has been opened in this way, all trace output will be redirected to that stream. TRACE CLOSE should be used to close the stream when you have finished with it, while TRACE used as a function returns the handle of the stream.

DEBUGGING

First of all we need a short program running in a task window, which can take and display any output sent to the pipe. This is easily achieved by opening a task window (by pressing Ctrl-F12), and running the following program:

```
 10 file%=OPENIN"Pipe:$.DebugFile"
 20 IF file%=0 PRINT "Error - Pipefile
doesn't exist":END
 30 WHILE NOT EOF#file%
 40 PRINT GET$#file%
 50 ENDWHILE
 60 CLOSE#file%
 70 PRINT "Pipefile closed"
```

This program must run continuously in the task window while you are debugging the main program. The process of opening the task window and running the debugging program can also be automated, as will be described later.

Now we need to arrange for the program we are debugging to send the required output to the pipe. The pipe file can be opened during the initialisation procedure of the task under scrutiny. If you are going to use the pipe for trace output, you should open it as follows:

```
TRACE TO "Pipe:$.DebugFile"
```

The filename can of course be anything you choose, but it must match the filename which is being opened in the first line of the debug program above. If you open the pipe file in this way, any output from the TRACE command, for example following a TRACE ON at some point in the program, will be displayed in the task window. However, you can also output any other data to the task window provided it is in ASCII format, by using BPUT# to write to the stream you have opened, as in the following examples:

```
BPUT#TRACE,"About to call Wimp_Poll"
BPUT#TRACE,"var%="+STR$var%
```

The first example will result in a string being printed in the task window indicating which point in the program has been reached, while the second example prints a variable name (in this case var%) together with its value.

If you are not using trace output, you can simply open the pipe file with:

```
file%=OPENOUT"Pipe:$.DebugFile"
```

and write to it with:

```
BPUT#file%,<string>
```

ADDING THE DEBUG FACILITY TO YOUR OWN PROGRAMS

I mentioned earlier that it is possible to automate the process of opening the task window debugger. First of all, type in the debug program given earlier and save a copy of it as *Debug* inside the application directory of the program to be debugged. Create an Obey file called *!RunDebug* with the following lines:

```
WimpSlot -min 32K -max 32K
Run <Obey$Dir>.Debug
```

and save it to the same directory. Now add a new procedure to your main program called *PROCinitdebug*, and call it immediately after the main initialisation procedure (altering the line numbering to suit and also the application name in line 1030 if necessary):

```
 1000 DEF PROCinitdebug
 1010 TRACE TO "Pipe:$.DebugFile"
 1020 file%=TRACE
 1030 BPUT#file%,"Traced output from MyA
pp"
 1040 BPUT#file%,""
 1050 SYS "OS_ReadVarVal","Obey$Dir",blo
ck%,255 ,0,3 TO ,,len%
 1060 block%?len%=13:path$=$block%
 1070 name$=CHR$34+"Debug output"+CHR$34
 1080 com$=CHR$34+"Obey "+path$+".!RunDe
bug"+CHR$34
 1090 OSCLI("WimpTask TaskWindow "+com$+
" -name "+name$+" -display -quit")
 1100 ENDPROC
```

The procedure assumes you have already dimensioned a block of at least 255 bytes as *block%*.

Having done this, any TRACE ON command will direct trace output to the task window, and any strings sent to *file%* using BPUT# will also appear in the task window. When you have finished with the debugger (for example when your application is about to quit, or when you are reporting a fatal error), you should issue a TRACE CLOSE statement.

TRACE REVISITED

It is worth elaborating a little on the TRACE command, since many newcomers to programming may not have fully explored its usefulness. We have seen above how to send the traced output to a file (and thence to a task window for immediate display). The command itself has several forms. TRACE ON switches on simple line number tracing, but you can also use the form TRACE PROC. This will instead display the names of procedures as they are called within the program. To turn any kind of trace off, just use TRACE OFF. The trace can be switched on or off at any point in your program, so you can easily isolate the section that you want to study. Bear in mind when you are tracing line numbers that lines which don't perform any actual processing (e.g. DEF PROC, ENDPROC, REPEAT, UNTIL etc.) are not shown.

Even more valuable in many situations is the ability effectively to single-step your Basic program. By adding the keyword STEP after TRACE, for example:

```
TRACE STEP ON
```

the program waits for a key to be pressed before continuing execution after each trace output item is displayed. However, you should think carefully before using this in a general way with a multi-tasking program, as it will almost certainly affect the whole operation of the Desktop. Multi-tasking depends on well-behaved applications passing control back to Wimp_Poll as soon as possible; if your application has to wait for several keypresses before it gets back to its poll loop, you will have difficulty moving windows around or accessing menus, for example. It is better to use the STEP facility within procedures to trace a route through a single operation, and turn the trace off again at the end of the procedure.

OTHER DEBUGGING TECHNIQUES

You should be able to think of other uses for a task window when debugging. One example would be examining a module's workspace. Open a task window and enter Basic, then type in or load the following function:

```
 10 DEF FNmodworkspace(x%)
 20 SYS "OS_Module",18,"Modname" TO ,,,
,w%
 30 =w%!x%
```

replacing *Modname* in line 20 with the full name of the module you want to access. You can then examine the contents of any word in the module's workspace at any time by entering:

```
PRINT FNmodworkspace(offset)
```

where *offset* is an integer giving the offset of the word in question from the start of the workspace. If you replace *w%!x%* in line 30 with *w%?x%*, it will give you the contents of a single byte instead.

If you have ideas of your own for debugging via a task window, don't forget that RISC User pays for all hints published on the *Hints & Tips* pages.

Working with Images
Part 4: Processing colour images

by Lee Calcraft

In part 2 of this series we looked at image processing with monochrome images, focusing on the Aim package. This month we move into the realm of colour images, and will make use of an excellent shareware package called *Process*. This is available through public domain sources (including our own PD library), but as with all shareware, you are asked to send a fee (of 100 Danish Kroner or £11) to the author if you decide to make use of it.

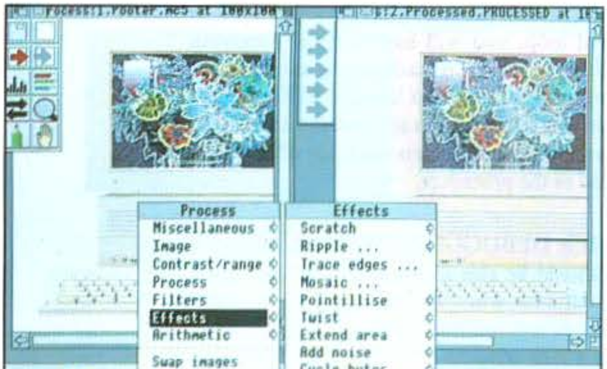


Figure 1. Process' main menu, with source and destination windows

Process is run in the normal way, and sprites may be loaded into it by dragging them to the Process icon on the icon bar. Process loads the first sprite in the file into its *source* window, and ignores any other sprites which the file might contain. The source window has an 8-tool pane attached to it, but for most purposes I found it much easier to use the source window menu. This is quite extensive, as you can see from figure 1. Each of the main entries has a sub-menu containing many further options. This really is a feature-laden package. And almost all of its features are designed for processing the source image in one way or another - though limited painting and drawing is also provided for.

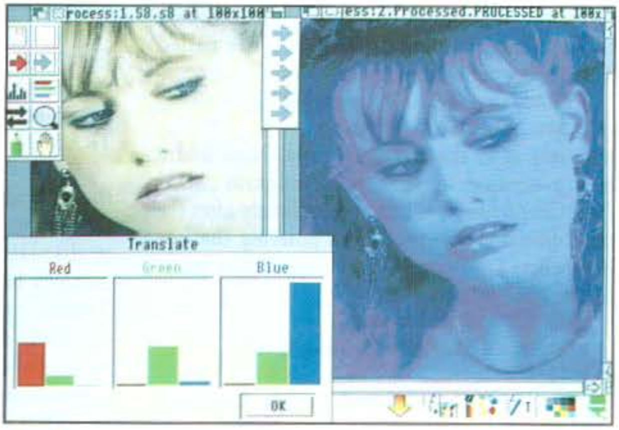


Figure 2. Translate allows you to reassign the effect of each of the RGB components of your image

The results of most processes appear in a dedicated destination window. This is an excellent idea, since (just as with Aim) it means that you can experiment with a wide variety of effects without needing to actively restore the source image each time. There are of course options to save the results of your work, and to swap images between source and destination windows - useful when you decide that you have achieved the effect that you sought.

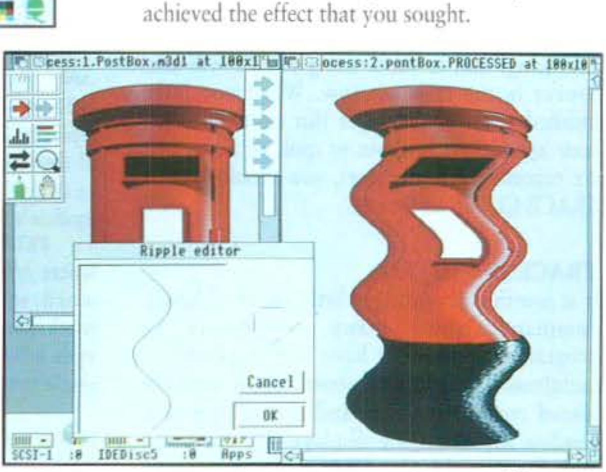


Figure 3. A ripple editor allows you to determine the degree of ripple applied to the image

Because of the profusion of features offered by this package, it is not possible to look at each in detail. Instead I will highlight some of the more interesting and unusual, and then put the package to work in earnest.

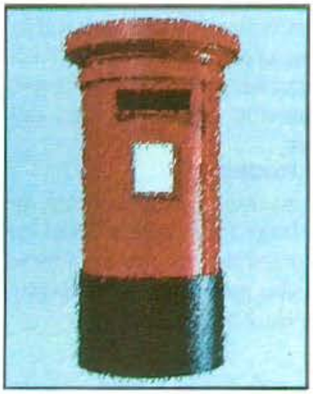


Figure 4.
Varying degrees of Scratch are available

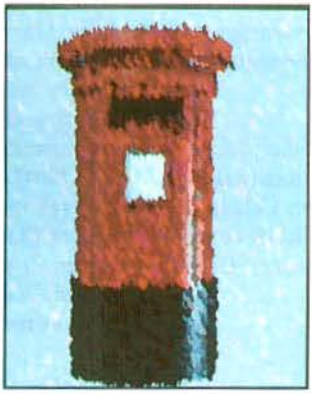


Figure 5.
Impressionism at the press of a button

COLOUR

There are masses of ways in which to alter the colour content of an image. Most of these make use of a colour selector window which enables you to control the particular effect using a set of sliders. As expected, you can add or subtract a selected colour to each pixel in your source image, but you can also pass your image through a filter of a chosen colour, or even move all pixels in your image towards a nominated colour. Suppose for example that your nominated colour was a medium red: dark reds would become lighter, light reds would become darker, while pixels containing no red would have a little red added to bring them towards the

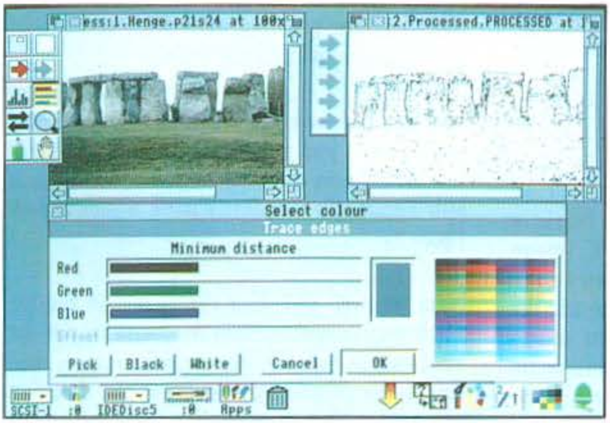


Figure 6.
Tracing edges at Stone Henge

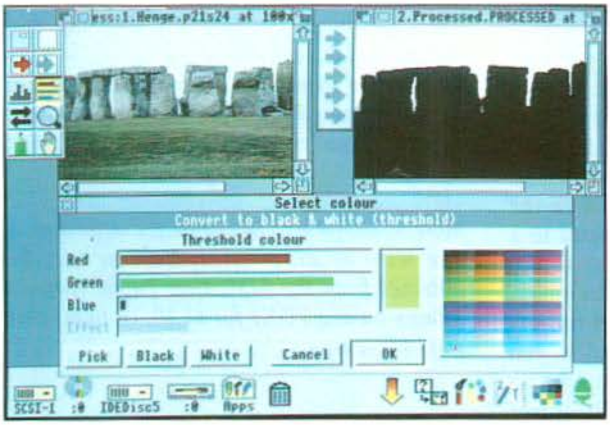


Figure 7.
Obtaining a silhouette effect using the Threshold option

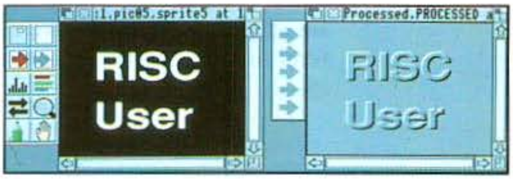


Figure 8.
Using the Edges filter to achieve an embossed effect

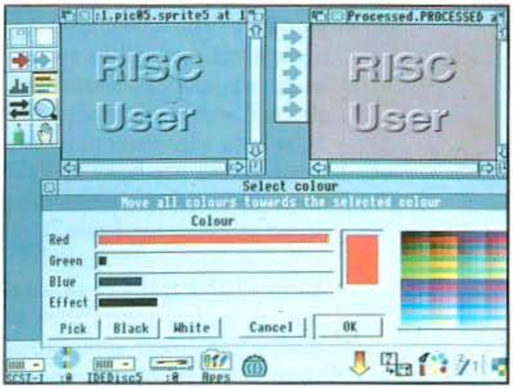


Figure 9.
Colouring the embossed image using the Shade option

nominated colour. And as with many of these effects, you can control the extent of the effect (as well as the colour) with a set of very responsive sliders. Figure 2 shows the *Translate* option in use. This allows you to reassign each of the three RGB colour components of an image.

Another thing which I like about this package is that in its handling of colour it totally ignores Acorn's artificial concept of *tint*. Colours are treated as simply having an RGB content (though you can even perform CMYK separations, RAM permitting).

FILTERS

A set of matrix filters also forms part of Process' armoury, though there are far fewer than those available to Aim users. But the usual sharpen, soften, edge, median, average and noise filters are all present. We will make use of the edge filter in a moment to achieve an embossing effect.

EFFECTS

Under the menu entry *Effects* there are eleven options, including some very neat features inspired no doubt by Mac and PC image processing packages. The *Ripple* entry even provides a ripple editor, allowing you to edit the ripple effect that will be applied to the source image (see figure 3). *Scratch* and *Pointillise* are also well worthy of mention (see figures 4 and 5), as is the edge tracer to produce an outline of major features (see figure 6). By contrast, careful use of the *Threshold* controls can give you a near perfect silhouette (see figure 7).

All in all this really is an excellent package. One of its few limitations is that it only handles 256 colour sprites (though it is quite happy with 256 colour greyscales), and ignores palettes and masks, making use of the default palette. The other main limitation is on the area which is processed. This is restricted to a nominated rectangular section of the source image, and by default the whole of the image. And when two sprites are combined for any process they must be of identical size, so you cannot for example blend a small image into a larger one. But for a tenner you really cannot fault it, and in spite of heavy use, I came across no bugs whatsoever.

RISC USER EMBOSSED

To see how useful Process is in practice, I set it the task of producing an embossed RISC User logo. The key to creating this is the use of the *Edges* filter to turn ordinary outline font text in black on white into an embossed image. So I will start by using Edit to write the text I want to use, selecting the Homerton font at say 40pt, and remembering to set:

```
*Configure FontMax 40
```

and reboot the machine before starting, to ensure that the large font is antialiased on screen. If you do not do this, it will appear ragged. You will also need to set Edit's display to white text on a black background.

You then need to grab this as a sprite, making sure that you have selected a high resolution mode (such as 21 if your monitor can cope with this). You can grab a screen segment by using Paint's *Snapshot* option on its icon bar menu. Then load the resulting sprite file into Process, by dragging it to its icon bar icon.

The first task involves selecting Process' *Filters* menu entry, and the *Edges* submenu. After a few seconds, an embossed image of the original will appear in the destination window (see figure 8).

Next we need to colour the image, so use the *Swap images* option from the menu to put the embossed picture into the source window, then select the *Shade* option from the *Process* submenu. This puts up a colour selection window which allows you to nominate a colour towards which all pixels in the image will be moved, and to determine the extent of the effect (see figure 9). By carefully adjusting this and clicking on OK with the Adjust button, to keep the window on screen after each test, you can colour the grey image very effectively without losing the raised effect.

More on images next month. In the mean time, if you wish to experiment, Process may be obtained from the RISC User Public Domain Library on disc PDX9 for £1.60, or from other good PD sources.

All images used this month are from MDI's Image Warehouse CD-ROM.

HARDWARE AND SOFTWARE EXPANSION FOR ACORN COMPUTERS

DUAL RS423 SERIAL INTERFACE - two additional RS423 serial interfaces for communicating with RS423 or RS232 devices eg modems (in order to use bulletin boards), printers, plotters, instruments, etc. Up to four cards can be fitted in a computer.

IEEE488 INTERFACE - enables up to 14 test and measurement instruments, from well known manufacturers such as Hewlett-Packard, Fluke, Philips, Tektronix, etc. to be connected to the computer. For example, voltmeters, oscilloscopes, spectrum analysers, function generators, counters, logic analysers, programmable power supplies, plotters, printers, etc.

16 BIT PARALLEL I/O - provides two separate 16 bit input/output ports. Other facilities include four 16 bit counter/timers, two 8 bit shift registers and eight interrupt inputs. Applications range from measurement and control to high speed data input and output.

12 BIT ADC - provides eight single ended inputs each with an input voltage range of -5 to +5 Volts. Up to 166,000 samples per second can be taken.

STEbus INTERFACE - overcomes the limitation of a maximum of four expansion cards in a computer by enabling the use of industry standard STEbus boards in an external input/output sub-system for measurement and control applications.

Intelligent Interfaces Ltd
P O Box 80
Eastleigh
Hants
SO5 5YX
Tel: 0703 261514 Fax: 0703 267904

SCSI DEVICES - internal and external hard disc drives, magneto-optical removable disc drives, tape streamers etc.

FORTRAN 77 COMPILER - completely compatible with the now discontinued Acornsoft compiler.

GINO-F 3D, GINOGRAF, GINOSURF and HERSHEY+ - the FORTRAN subroutine graphics libraries.

Intelligent Interfaces are Bradly Associates distributor for GINO-F 3D, GINOGRAF, GINOSURF for Acorn RISC OS-based Computers.

TERMULATOR - enables a computer to emulate a terminal from the VT range (VT52, VT102 or VT220) or a Tektronix 4010 graphics terminal.

Termulator a trade mark of Acorn Computers Limited is applied to this product under licence from Acorn Computers Limited.

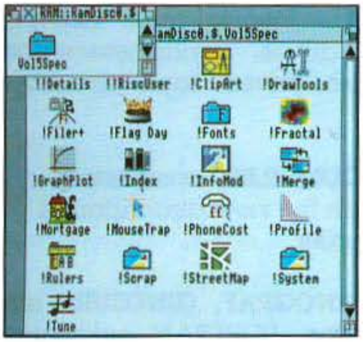
COMPLETE SYSTEMS - configured to customer's requirements by fitting RAM upgrades, hard discs, expansion cards, etc.

ADVICE - SUPPLY - SUPPORT - Intelligent Interfaces were established in 1981 and have enjoyed a long relationship with Acorn Computers. This places them in an ideal position to advise on, supply and support systems purchased from them.

INTELLIGENT INTERFACES

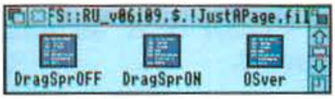
RISC User Disc Aug/September

Visual Disc Cataloguer



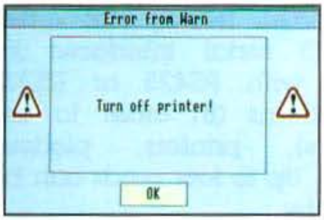
This application allows you to create visual catalogues of the root directories of floppy discs. Rather than presenting textual information about a disc's contents, CatAFlop duplicates the root directory structure of a floppy disc, complete with all the !Sprites files. Now you will have no excuse for losing those important files.

Just a Page



Programs from this month's Just a Page feature allow you to turn solid sprite dragging on and off, and display the OS version number of your machine.

Shutdown Reminder

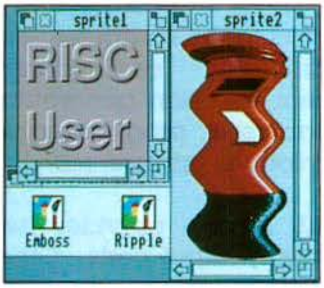


Error from Warn

Turn off printer!

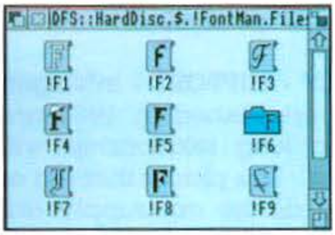
A very handy application that will send you a reminder when you shutdown your system. The message can easily be customised to suit your own requirements. This version will remind you to switch the printer off.

Image Effects



The magazine disc contains three examples of interesting effects which can be achieved using the Process image enhancement application. This application is discussed in the *Working with Images* feature in the magazine.

ADDITIONAL ITEMS DESCRIBED IN THE MAGAZINE

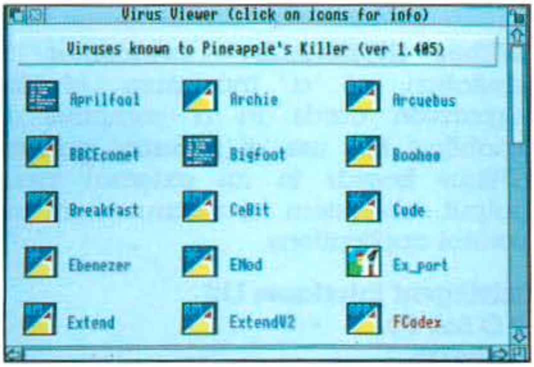


The Font Manager

This is an excellent solution to the problem of font organisation. Font Manager allows you to split your fonts into directories whose icons represent different styles of fonts. Double-clicking on any of the font directories will add those fonts to the ones currently available. Double-clicking on the same directory again will de-install just those fonts. This is very useful for those problem applications that complain about the presence of too many fonts.

Rogues Gallery

This application provides both graphical and textual information on 44 viruses families known to infect Acorn RISC computers.

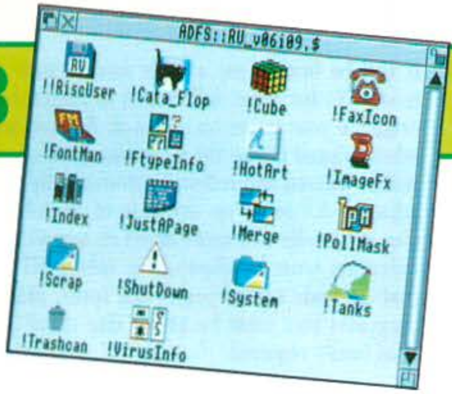


Trashcan

Trashcan is a Desktop dustbin for RISC OS 3. It makes use of the FilerAction commands, so that all file copying, moving and deleting are performed in the background. One advantage over the RISC User Dustbin is that the bin is not emptied automatically at boot-up.

93

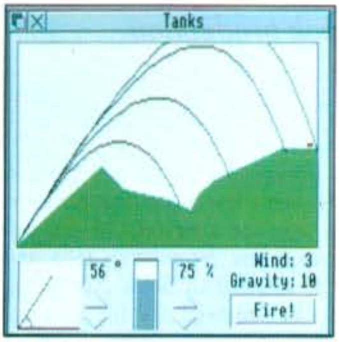
This action-packed magazine disc costs just £4.75 inc VAT.



FaxPack Icon

The magazine disc contains a replacement "fp_offhook" icon for Computer Concepts' FaxPack. The icon is red, which makes it very easy to see if your FaxPack is active.

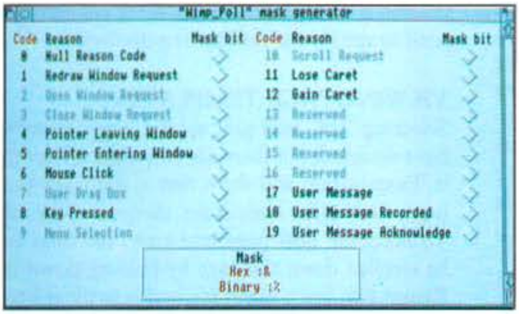
Tanks



Tanks is an addictive little Desktop game that will keep you amused for hours. As the gunner, it's up to you to destroy the enemy base on the far side of the battle-field. You will have to watch the wind speed and direction to ensure that the projectiles reach their intended destination.

BONUS ITEMS

Poll Mask Editor



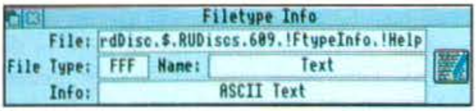
"Wimp_Poll" mask generator

Code	Reason	Mask bit	Code	Reason	Mask bit
0	Null Reason Code	✓	10	Scroll Request	✓
1	Redraw Window Request	✓	11	Lose Caret	✓
2	Open Window Request	✓	12	Gain Caret	✓
3	Close Window Request	✓	13	Reserved	✓
4	Pointer Leaving Window	✓	14	Reserved	✓
5	Pointer Entering Window	✓	15	Reserved	✓
6	Mouse Click	✓	16	Reserved	✓
7	User Drag Box	✓	17	User Message	✓
8	Key Pressed	✓	18	User Message Recorded	✓
9	Menu Selection	✓	19	User Message Acknowledge	✓

Mask
Hex :&
Binary :%

This is an easy-to-use program that generates the mask required by R0 of the Wimp_Poll routine. PollMask will inform you if a reason code should not be masked out, and will even tell you what mask bits are set if you enter a mask number.

File Type Info



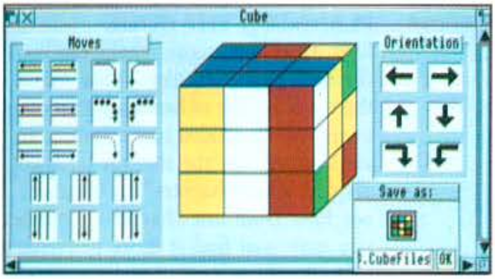
Filetype Info
File: rdDisc.$.RUDiscs.609.!FtypeInfo.!Help
File Type: FFF Name: Text
Info: ASCII Text

This little utility is probably the most comprehensive filetype identifier available. It can currently identify 476 different filetypes, in most cases telling you both the filetype name and the application it belongs to.

Hotkeys for ArtWorks

HotArt is an excellent application that provides 17 extra hotkeys for use with Computer Concepts' ArtWorks. The hotkeys allow keyboard access to everything from the envelope and perspective tools to the text, magnify and fill menus.

Solve the Cube



This is an improved version of the 3D puzzle supplied last month. Cube has been speeded up considerably. The screen is updated faster, resulting in a smoother display. Unfortunately, it still takes just as long to solve.

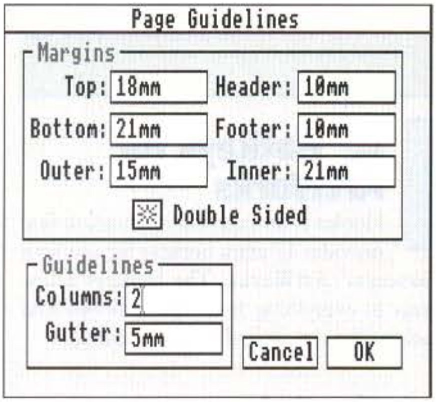
ArcScan Data

ArcScan Indexes for this month's RISC User and BEEBUG Vol.12 No.3.

Getting the Best from Ovation

This month Bill Nichols takes a look at pamphlet and book production.

In previous articles we have seen how Ovation's frame and line tools can be used to prepare a variety of documents and printed forms. Now let us look at how they can be applied to book publishing such as might be required say for club secretaries, churches or small businesses, where the whole process is carried out "in house". The final product will be of A5 size obtained by folding or cutting in half A4 sheets, bound by stapling or using for example, plastic or wire spirals. Of course, Ovation can be used to prepare copy for professional printers but I will leave this on one side for the time being.



Top: 18mm
Header: 10mm
Bottom: 21mm
Footer: 10mm
Outer: 15mm
Inner: 21mm
☒ Double Sided
Columns: 2
Gutter: 5mm

Figure 1. The Page Guidelines menu

PLANNING THE BOOK

First make some notes about the book's design: the title page, contents, how many chapters, there will be, use of headers and footers, whether pages will be divided into columns, an index and so forth. All but the shortest booklets should be divided into "chapters" in Ovation. Text does not flow from one chapter to another. Indeed, you may well find it more convenient to treat each chapter as a separate document.

You will probably make many amendments to your book as it is written, and short chapters help to keep everything tidy and manageable. Imagine one long document of 50 pages in which you added a paragraph near the beginning. The text would flow to accommodate it, shuffling everything forward on all the remaining pages - an almost impossible situation to control.

It will be best to use a wide screen mode (e.g. mode 39) for what follows. It is preferable to originate your pages on screen at A4 size, which when printed (using the pamphlet mode option) will be rotated and reduced automatically to two adjacent A5 pages on one side of an A4 sheet, plus eventually two more on its reverse side. The reduction must be allowed for (about 67%) so that on your screen pages, the fonts, margins, diagrams etc. must be about one third larger than finally required.

Now prepare a blank Ovation document, having Master Pages to suit your design. I will consider a booklet with a title page, followed by a contents page, then several chapters with page headers and page numbers, the pages having two columns - for example, an instruction manual. Select *New Document* from the icon bar menu. Highlight <double sided> then enter values for the margins but ignore headers and footers at this stage. Top margin might be 18mm (i.e. 12mm in the finished document), bottom margin 21mm, and you will see that the dialogue box asks for an outer and an inner margin, which can be 15mm and 21mm respectively. As a rule make the inner margin wider in order to allow for the binding and the inside fold. The above layout is for the title and contents pages so only one column is wanted. For two or more columns you need to specify the spacing or *gutter* width.

VIEWING PAGE TEMPLATES

Selecting 'OK' will give us the blank page we have designed, but there are two ways of viewing it. Examination will show that it is a right-hand page, having the wide inner margin on the left. To bring the next page into view, the caret can be scrolled down the page by holding down the Return key, but a better method is to press Enter on the numeric key pad. This always carries the caret to the top of the next column or the next page. You will see that page 2 is a left hand page, with the wide margin on the right. When printed it will be the obverse of page 1. In this mode, a right-hand page follows a left-hand page vertically as you scroll down the screen.

From the *View* menu select *Double Pages*. Now you will see two pages side by side, although to see both fully at once you will have to view at about 50%. You may prefer to work in this mode. Either mode produces the same printout. You can see where you are in the book by glancing at the left of the tool bar - this gives the chapter and the sequential page number for the whole document. The description which follows assumes use of the first mode.

PAGE TEMPLATES

So far we have a single column page for the title page and anywhere else in the book where a plain page is required. We require another template in a separate chapter for the main pages which must have two columns, headers and page numbers. Ensure the back of the title page is on screen and is labelled 1/2 - i.e. chapter 1, page 2. From the *Page* menu select *New Chapter.After Current Chapter*. An identical page will appear labelled 2/3 i.e. chapter two, the third page in the series. Scroll it to fill the screen. The Master Page must now be modified to give the two columns we require. From the *Page* menu use Adjust to *Show Master Pages* then select *Page Guidelines*. Make the required alterations as in the example I have shown in Figure 1.

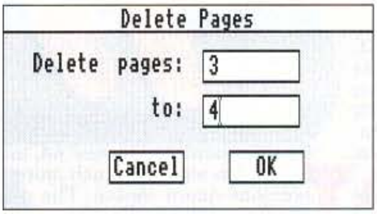
Press 'OK' and the new Master page appears. Draw a thin line just underneath the header frame and just above the footer frame to separate them from the text. Return to the *Page* menu and *Hide Master Pages*. However, the changes will not yet have been transferred to the working pages, To do this we have to delete the old ones in chapter 2. Select *Delete Page* from the *Page* menu and this box of Figure 2 appears.

When working with double pages it is essential always to work in pairs of pages. Thus if we wish to delete pages we have to delete them in pairs. In the present example we want to remove pages 3 and 4, and replace them with the new design. Enter 3 to 4 in the boxes and click 'OK'. Immediately a new page 3 will appear on screen with its two columns, the header appearing below the top margin and the footer placed above the bottom margin. Press Enter twice to get the caret to the top of page 4 and the preparation is complete.

You could prepare any other special page designs in the same way. For safety, save your work with a suitable name (e.g. *BookTemp*) although you will have to save it again when you have prepared the paragraph styles. Do this now, with fonts, sizes, styles etc. for main headings, sub-headings and so forth. For the headers, make two styles, one left justified, the other right justified (e.g. *HeaderL* and *HeaderR*) and use these for auto page numbering too. Remember to choose font sizes one third larger than required on the finished page. Save the document once again, overwriting the earlier version.

USING THE TEMPLATE

At last you are ready to write the book! Complete the title page. Go to the next page (the back of the title page). Leave it blank or perhaps add a copyright notice or whatever. With page 1/2 on screen create a new chapter as described earlier. Add the heading "Contents" although it may be wiser to leave the completion of this page until the end. Scroll to 2/4 (the reverse side of Contents). Leave it blank in case you need to use it later. Now you are ready for the first text page in two columns which the reader will know as chapter 1. You don't have to construct a new chapter - you have already done so in the template. It has been waiting off screen until you allowed it to scroll up into view - now numbered 3/5.



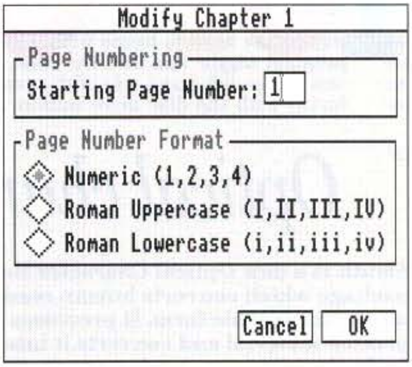
Delete pages: 3

to: 4

Figure 2. Deleting pages

ENTERING HEADERS AND FOOTERS

Select *Show Master Pages*. The first to appear will probably be a left-hand Master page. Type in the header using style *HeaderL*. Go to the footer and using the same style type "Page", space, then press Insert. You will see "Page #". Ovation will add the correct page number in place of the # symbol for each page. Scroll the second Master page into view - the right hand one - and complete it exactly as before using *HeaderR*. However, you will probably want this chapter to start at page 1 not 5. From the Page menu select *Modify Chapter* - see Figure 3.



Starting Page Number: 1

◈ Numeric (1,2,3,4)

◇ Roman Uppercase (I,II,III,IV)

◇ Roman Lowercase (i,ii,iii,iv)

Figure 3. The Modify Chapter menu

Enter the page number you want and the style for the number. If your book has a foreword in an earlier chapter you might prefer those introductory pages to be numbered separately in Roman numerals. Hide the Master pages and the ordinary pages will show all the changes. These will continue until you design another chapter.

I will tidy up any loose ends in my next article, and also look at aspects of printing the booklet. Please write in with your own comments, hints and tips. There is one important point to stress - all the articles and descriptions assume you have version 1.3 (or later) of Ovation (owners of version 1.2 can upgrade to 1.3 by sending their program disc together with £5 to Risc Developments Ltd.).

New type for Old!

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for the recently launched A4, and it has a sleek sloping design which is much more comfortable than the previous Acorn mouse. The mouse is also coloured warm grey to match the case.
On the back of the computer are a TV modulator socket, two joystick ports, a monitor socket (15 pin, as on the A5000), a headphone output, serial and parallel ports and the power switch. The mouse connector is also on he back of the case, which is far more convenient than the socket under the A3000, and there's a removable flap at the back where one mini expansion card will fit (the same cards that fit the A3000 will fit the A3010).

WHAT'S NEW, PUSSYCAT?
Physically, therefore, the A3010 represents an improvement on the A3000 in a number of ways. However, I found that the newly designed disc drive button, which is now almost flush with the case, was rather hard to locate without looking. Another personal niggle was that the reset button, which is now on the left-hand side of the case to prevent confusion with the disc drive button, is inset into the

which is so hard to press that most users will opt for simply switching the machine off and on? The official line is that
but I still think

The new TV
that the compu
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patchy. Smal
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being close to
computer for l
eyes pop out.
that produced
need to buy a
micro showed
comparison, a
quality of your
play is perfect
not quite up to
buy a monitor
pected bonus
put through yo
the neighbours

The two joystic
9-pin joysticks
operating sys
which provides
joysticks. For
SWI number
which simply
state of the joy
existing games
stick port, as they need specific code to read the joysticks. Quest for Gold, which is provided with the Family Solution (see below) makes use of the joysticks, as do most recent games. One small niggle is that the joystick ports are not numbered on the computer's case, but that's not a major problem.

There are a couple of other interesting points about the hardware side of the A3010. There is only one

idefs::IDEDisc.$ RISCdev

WHAT'S NEW, PUSSYCAT?
Physically, therefore, the A30
improvement on the A3000 in
However, I found that the nev
drive button, which is now alm
case, was rather hard to locat
Another personal niggle was t
ton, which is now on the left
case to prevent confusion wi
button, is inset into the comp
can only be pressed using a pe
design feature is intentional, a
Break can still be used to rese
most cases, but what use is a b
hard to press that most users
switching the machine off and
line is that then kids won't acc
but I still think it is a little too h

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Optical character recognition system

Sleuth is a new Optical Character Recognition (O.C.R.) package which converts human readable images of text into machine readable form. It processes a scanned image of printed material and converts it into an ASCII file which may be further processed using a text editor or word processor.

Sleuth is ideal for converting magazine articles, newspaper cuttings, legal documents, program listings, other resource materials etc. etc.

Sleuth v1.0 is a low-cost entry package into OCR and produces excellent results on a range of typefaces and sizes. It is the first in a planned family of products which will take OCR on Acorn machines to full professional level. Any future OCR products will be available as upgrades to existing users.

Sleuth is very easy to use - simply drag your scanned image into the input window, select the area to be converted and click to start. The ASCII conversion is displayed in the output window from where it may be saved. Sleuth is fully multitasking allowing you to correct any mistakes in the converted text while it is still converting the rest of the text.

What Sleuth can convert
Sleuth has been trained with a popular set of fonts (including most PostScript fonts) and can handle type sizes between 9 and 24 point. Other fonts will work too, but with reduced accuracy. Sleuth v1.0 only recognises fonts in their regular styles i.e. not bold, italic, condensed, nor does it recognise accented characters.

Sleuth can achieve an accuracy of over 97% on recognised fonts using good quality 400 dpi scanned images, but the accuracy is reduced if the image is of poor quality or if the font is unrecognised. Conversion speed is between 80 and 250 wpm depending on the hardware in use.

For special applications, RISC Developments will consider training Sleuth on new fonts supplied by the user. A charge will be made for this service.

Equipment required
You will require a hand-held or flatbed scanner which produces mode 18 mono sprites. The minimum resolution required is 200 dpi, but for best results you need 300 or 400 dpi. Sleuth will run on a 1Mb machine, but for 400 dpi scanners we recommend a machine with 2Mb or more.

Sleuth

Members Price
£41.65
+ £2 carriage + VAT

RISC developments

RISC Developments Ltd
117 Hatfield Road, St. Albans, Hertfordshire AL1 4JS
Telephone 0727 840303 Fax. 0727 860263

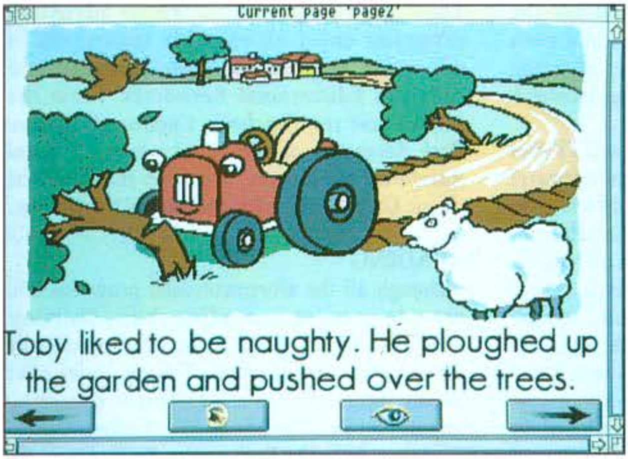
Please phone for a detailed specification, and for education and site licence prices.

Educational Software at Home Part 1: English

Chris Drage looks at the support that parents can give their children at home.

This and further articles are aimed chiefly at parents who want to use their Archimedes computers to help and assist their children in their school work. This may be to provide additional experiences from those gained at school - after all, in a class of 30 with one A3020, the chances are your youngster gets one session once a fortnight! Other motives may include computer assisted learning (CAL) to help the child gain a particular skill, and revision/testing software to help with revision for external examinations.

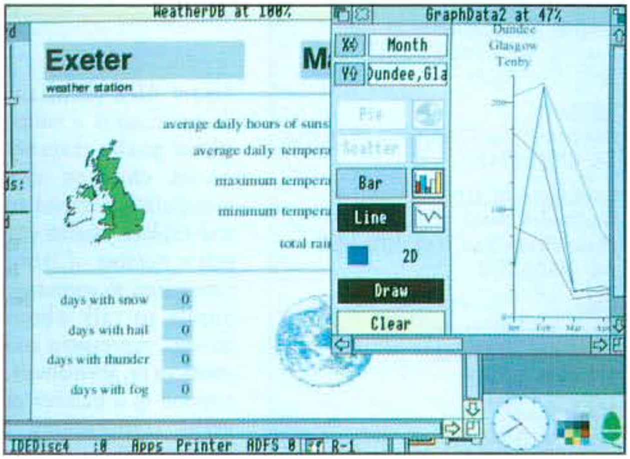
The problem with any educational work that a parent undertakes at home is that it may pre-empt work done by the school, undermining the development that the teacher is undertaking. The problem becomes more acute with a computer because it relates to specific items of software that may be used both in the home and the school. It is important for parents to work with the school and not in spite of it. Consultation with teachers will often result in savings in money, time and effort when choosing software: software that is being used in the current class topic can be avoided, and alternatives which tackle the same subject(s) in a different way may be purchased instead. Specific subject areas may have pieces of software that relate to them. Whether they fit in with the thinking of the school and/or the examination boards would need checking. At home the more generalised idea of developing thought processes, broad concepts and skills will pay dividends throughout the child's school career.


Current page 'page2'

Toby liked to be naughty. He ploughed up the garden and pushed over the trees.

Toby the Troublesome Tractor

In terms of language development, the computer provides opportunity to practice word processing, presentation skills, and develop language and computer skills simultaneously. We shall discuss its contribution to other areas of learning in future issues of RISC User.



Advance word processor

Talking and listening are fundamental to language growth, and the most important contribution a computer makes takes place every time two or more people gather round it for a particular purpose, viz discussion. Thus any computer based activity which involves small groups of children or child with parent will provide valuable opportunities for talking and listening, and many programs encourage the child to use language. Here are some software suggestions for young children:

Podd (ESM) has earned itself a reputation from the early days of computers in schools. It encourages children to develop their word power and to explore a wide number of verbs. *Noot* (4Mation) is an animation program which contains an example file containing delightful character called Dweek who can be asked to perform all manner of clever things which young children find highly delightful.

PRODUCT INFO

For further information contact:

4Mation Educational Resources,
14 Castle Park Road, Barnstaple,
Devon EX32 8PA.
Tel. 0271 25353

Acorn Computers,
Fulbourn Road, Cherry Hinton,
Cambridge CB1 4JN.
Tel. 0223 254254

Brilliant Computing,
Box 142, Bradford BD9 5NF.
Tel. 0274 578239

Chalksoft,
P.O.Box 49, Spalding, Lincs PE11 1NZ.
Tel. 0775 769518

Computer Concepts,
Gaddesden Place,
Hemel Hempstead, Herts HP2 6EX.
Tel. 0442 63933

ESM,
Duke Street, Wisbech,
Cambridge PE13 2AE.
Tel. 0945 587361

H.S.Software,
56 Hendrefoilan Avenue, Sketty,
Swansea SA2 7NB.
Tel. 0792 204519

Longman Logotron,
124 Cambridge Science Park,
Milton Road, Cambridge CB4 4ZS.
Te. 0223 425558

Northern Micromedia,
Resources Centre, Coach Lane Campus,
Newcastle-upon-Tyne NE7 7XA.
Tel. 091 270 0424

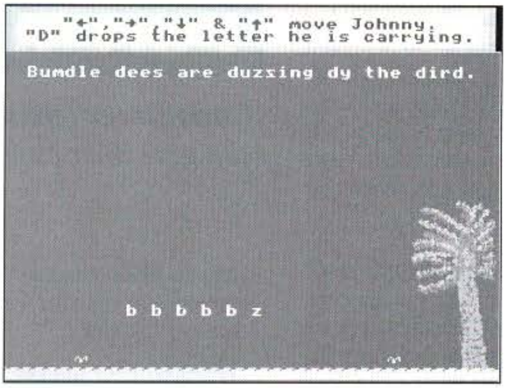
N.W.SEMERC,
Fitton Hill CDC, Rosary Road,
Oldham OL8 2QE.
061 627 4469

RISC Developments,
117 Hatfield Road,
St. Albans, Herts AL1 4JS.
Tel. 0727 840303

Sherston Software Ltd,
Swan Barton, Sherston,
Malmesbury, Wiltshire SN16 0LH.
Tel. 0666 840433

Smart Alex (Brilliant Computing) is a multi-ethnic/ gender character whom children can manipulate, respond to and explore. She/he can pull a number of faces/ expressions to encourage pupils to talk about feelings, expressions and emotions or, alternatively, respond to a number of verbs (represented by Rebus symbols for non-readers). Alex can even reveal something about him/herself and ask the user questions and even holds a number of strong opinions awaiting discovery!

Fun & Games and *TV Fun & Games* (H.S.Software) offer activities which cover a wide range of abilities and skills such as reading, matching, sequencing, auditory and visual memory. Each suite has multiple levels which will challenge both a four year or an eight year. One of my favourites is TIDY, a game in which children are invited to help Emma tidy up her bedroom by guiding her parrot to put all her toys away. Again, it is a game for practicing a range of skills including early reading, comparing objects of different shape and size but particularly for its use of prepositions. Each program uses smooth animation and makes extensive use of clear digitised speech.



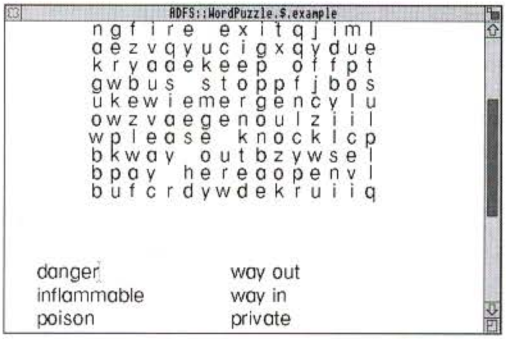
```
"←","→" "↓" & "↑" move Johnny.
"D" drops the letter he is carrying.

Bumdle dees are duzzing dy the dird.

b b b b b z
```

Reversals

Simple adventure games provide a medium for many communication skills and for language development generally. A good adventure can provide an exciting and stimulating learning environment for children. Often these programs are specific to skills and are not dealing necessarily with specific topics such as spelling. Should that topic arise, it is hidden in the general fun of the package and is learnt or practiced unawares. There are two publishers whose adventure programs enjoy an enviable reputation in education circles: Sherston Software and 4Mation Educational Resources. From the former just try *Teacher's Cupboard*, *Nature Park Adventure* or the award winning *Crystal Rainforest* for starters, and from the latter the classic *Granny's Garden* and *Darryl the Dragon*.



```
ngfire exitqjiml
aezvqyucigxqydue
kryaadekeep offpt
gwbus stoppfjbos
ukewiemergencylu
owzvaegenoulziil
wplease knocklcp
bkway outbzywsel
bpay hereaopenvl
bufcrdywdekruiiq

danger          way out
inflammable     way in
poison          private
```

Word Puzzle

READING

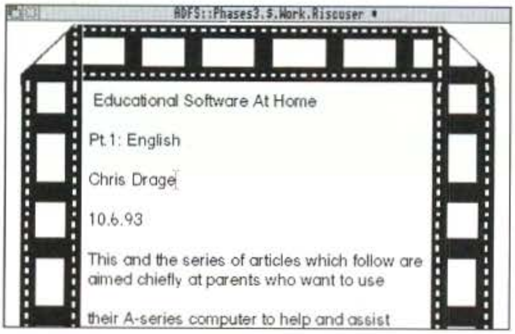
Although all the aforementioned programs will provide practice in reading skills, Sherston Software markets talking books which specifically aim to boost reading skills. Talking books offer reader interaction in a way that is otherwise impossible. Sherston has limited the first issue to six titles: *Billy the Bothersome Bully*, *Doris the Dotty Dog*, *Edwina's Energetic Elephant*, *Terry's Tricky Trainers*, *Tina's Terrible Trumpet* and *Toby the Troublesome Tractor*. They each feature recorded human speech which the computer will 'read' to the child when commanded. One page of the book is presented at a time, complete with an attractive illustration, and with a phrase or sentence below. The child can either listen to the whole of the text being spoken or click on individual words in order to hear them. The books are very well suited to helping reluctant readers, for apart from being highly motivating, the ability to configure each book to speak only reader-selected words and log them in a file provides clues to the child's progress.

WRITING, SPELLING, PRESENTATION

Word processing offers a means to succeed with the written word, even before writing has become second nature. Packages such as Archimedes *Pendown* (Longman Logotron) and *Desktop Folio* (E.S.M.) are ideally suited to school use, but probably will not offer all the facilities demanded in a home-based word processor where both mum, dad and older siblings will all want to use it. However, ***Advance*** (Acorn - £99.00), an integrated suite comprising a document processor, spreadsheet and database manager, offers a versatile word processor based on the Impression Junior DTP package, but has sufficient features to suit a wide range of requirements. With the National Curriculum emphasis on children at Key Stages 2/3/4 recording and presenting their data, Advance also offers a really useful tool for this purpose. Advance is a very versatile package which is further enhanced by the fact that data can be shared with virtually any other RISC OS compliant software (see also RISC User 6:6, 6:7, and 6:8). In the home there are not the demands on time that there are in the classroom, and the complexities of such software can be easily explained and perfected.

For developing spelling skills and punctuation, look out for *Crossword Callup* (Northern Micromedia - creates and prints crosswords, clues and solutions), *Word Puzzle* (N.W.SEMERC - creating and printing word squares), *Reversals* and *Puncman 5/6/7* (both Chalksoft). All these programs are enjoyable and ideally suited to home use.

For young children, ***Phases3*** (Northwest SEMERC £15.00) is so affordable and provides such a good introduction to DTP processes that it is virtually a must. Although specifically designed for children with special educational needs, this 'type in/print out' word processor is very easy to use, possessing the ability to display text in six (fixed) sizes and permits pictures and borders to be popped into the text area. Discs of borders and graphic images on specific themes are available, which encourage children to experiment and try things out.



Educational Software At Home

Pt.1: English

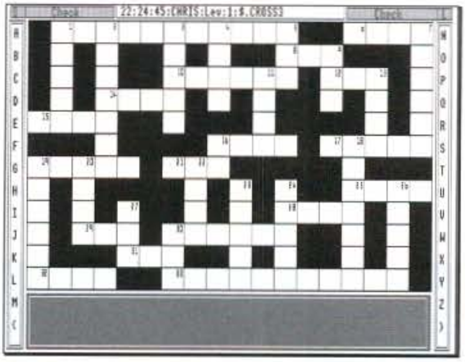
Chris Drage

10.6.93

This and the series of articles which follow are aimed chiefly at parents who want to use

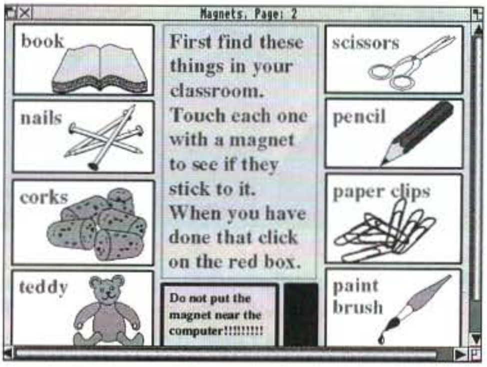
their A-series computer to help and assist

Phases3



Crossword Callup

Impression (Computer Concepts) or *Ovation* (RISC Developments) are excellent all-round document processors combining both word processing and DTP characteristics, particularly suitable for pupils at Key Stages 3 and 4 (secondary). So much has been written about these excellent programs that it is enough to say that they are essential tools for supporting your child at both the secondary and tertiary levels of education.



First find these things in your classroom. Touch each one with a magnet to see if they stick to it. When you have done that click on the red box.

Do not put the magnet near the computer!!!!!!!!

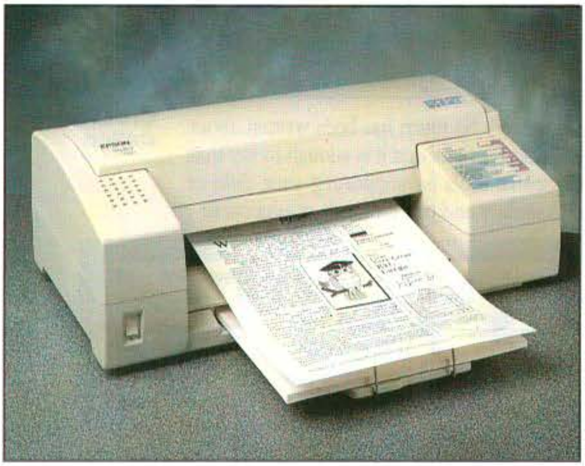
Magpie

That's all we have time for this month but before leaving the subject of language development I must emphasise that in one area computers alone will have an increasingly important role: that of multimedia. Multimedia offers a focus for all language skills writing, reading and speech, and the one piece of Archimedes software which fulfils an authoring role particularly well is *Magpie* (Longman-Logotron). The sense of satisfaction gained from creating an illustrated, informative diary, for example, with real (digitised) photos and movie footage (Replay) complete with audio commentary/ music/sound effects just has to experienced to be believed!

Epson Stylus 800 Printer

Mark Sealey reports on a potentially significant advance in low cost quality printing.

Once in a while a new piece of hardware comes along that really seems to have 'got everything going for it'. Thanks to its price and quality, this certainly seems to be true of the latest addition to the Epson inkjet range, the much publicised *Stylus 800*.



The Epson Stylus 800

This excellent printer makes an ideal alternative to the Hewlett Packard Deskjet 500 for the Archimedes range; if you regularly need output equal in quality or indeed better than some of the 'budget' lasers, then the Stylus 800 could well be the answer.

MACH TECHNOLOGY

Those words will strike terror into Archimedes users who remember the MACH fiasco three and a half years ago (see RISC User 3:2, editorial) when an ambitious project to build hardware PC emulators over-reached itself.

In the case of the new Epson product, MACH stands for Multi-layer ACtuator Head. Most currently available inkjets employ thermal techniques to deposit the tiny points of ink onto the paper. MACH makes use of the piezo electric effect whereby electrical energy (the signals from the computer) is converted into mechanical energy. This 'cool crystal' method causes a sandwiched multi-layer crystal to expand and contract as electrical current is applied. It is this which expels the ink droplet through its 48 nozzles.

The idea behind this system, usually found only in the more expensive printers, is that both speed and quality can be increased by using this piezo-electric effect, chiefly because the droplets are smaller and can be 'fired' more accurately. Additionally it is claimed that, because there is no need to 'boil' the ink to eject it, reliability is greater.

What is more, only the ink cartridge and not the entire printhead as is the case with Deskjet, has to be replaced. At £10.30 for each cartridge, this makes for much greater economy in running the unit. A cartridge will print the equivalent of three quarters of a million characters or very roughly 100 sides of average density A4 sheets. Helpfully, there is advanced warning when the ink is about to run out.

THE PRINTER

Resembling the HP Deskjet, the Stylus 800 is not particularly small or light, measuring 154mm x 435mm x 264mm and weighing nearly 5Kg. Paper is fed in and ejected automatically from a nearly central 'alcove' at the front of the unit. The printer has an in-built 100-sheet paper tray (those of other comparable printers can typically cost anything up to £100 extra).

The data (standard parallel) and mains cable sockets are to be found either side of a slot at the back which takes manually fed single sheets and envelopes in sizes to A4 and 104mm x 240mm respectively. Paper handling was found to operate faultlessly over the period of time during which the printer was tested for review, although there is easy access to the feed paths should a jam occur.

To the right on top of the printer are five buttons. These are used to control the various functions of the printer. The whole business of selecting fonts, resetting and pausing the printer is extremely simple and can be learnt in minutes. This contrasts favourably with some of the longer button combinations necessary on more apparently sophisticated printers.

IN OPERATION

One of the reasons for buying an inkjet is its quietness. The Stylus 800 performs well in this department. It is quite possible to hold a telephone conversation whilst printing out a page of complex graphics with the printer whirring away some 50cm from the phone!

SPEED

Another reason for choosing an inkjet in preference to the impact dot matrix is its speed. Table 1 shows typical timings for draft, NLQ and 360 x 360 graphics output of the same Draw file used in the review of another printer which you might be considering, the Canon BJ200 (see RISC User 6:5). These correspond accurately to the claimed figures of 150 cps (Pica), 180 cps (Elite) and 225 cps (15 characters per inch).

There are two software enhancements available for this printer: Ace's Pro-Driver (tested under LQ860 emulation for this review), and a new, dedicated Stylus 800 Turbo Driver from Computer Concepts. The speed of the latter is very impressive indeed. Average timings for straight text are similar to those for the other drivers, but printing of the Christmas tree took only 57 secs, and control was handed back to the computer after only 22 secs. The Ace and Acorn timings are not so impressive, but adequate.

Draft text	**33.7**	**(35) secs**
NLQ text	**37**	**(35) secs**
Draw file @ 360 x 360	**300**	**(57) secs**

Table 1. Timings for one page of printout (Turbo Driver in brackets)

While the Turbo driver supports a great variety of settings affecting resolution and density, the output quality of the Ace driver is smoother than the Turbo's if grey dithering is selected. The Turbo driver makes fewer passes with the printhead (and hence uses less ink), and a horizontal banding effect is noticeable.

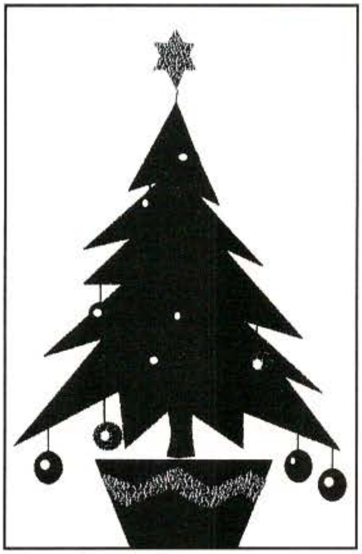
However, there have been improvements to the Turbo driver's handling of text, and most of the criticisms made in the BJ200 review (RISC User 6:5) of that Turbo driver have been addressed. The Stylus in-built fonts are all available, and 1st Word Plus codes work perfectly in text printing.

QUALITY

The excellent output quality is probably the main advantage of the Stylus 800. As can be seen from the tub of the tree, the blacks really are black; the dithered greys are convincing and the lines are crisp and laser thin.

MINOR DRAWBACKS

There are two minor niggles: as with the Deskjet, poorer quality (i.e. lighter in weight) photocopier paper can smudge, particularly in the first few pages after switching on. Croxley Script (which is a bond 85 gsm) was found to overcome this totally. There are sure to be other papers just as satisfactory, so some experimenting with paper types is recommended. The ink is slightly wet when a sheet emerges; it is a good idea to leave it 20-30 seconds or so before handling it. Ink remains permanently susceptible to smudging on contact with water. This is something that is also true of the Deskjet, but look at the success it has had!



Smooth graphics printing using LQ860 emulation

The other disadvantage is that you are paying for four scalable fonts (two Roman and two Sans Serif, scalable from 8 to 32 point) as well as five bit mapped ones (Roman, Sans Serif, Courier, Prestige and Script) in the product's firmware. Since the Archimedes range has such a wide selection of outline fonts for use in DTP applications, for example, there is some duplication of features.

But if you want to print from a word processor, say, in different styles, you have not only a total of 15 widths to choose from as well as a dozen 'enhancements'... bold, italic, shadow, underline etc. but also 17 character and 12 graphics sets, including one user-defined. These are selected using the aforementioned buttons with combinations of eight of the nine LEDs by their sides. The buffer can be set only to 8 or 32K.

ESC/P2

The Epson Standard Code for Printers, the so called 'Escape Code', has been upgraded to version 2 (ESC/P2) and is fully supported on the Stylus 800. Again, this turns out to be of more interest to PC users because it offers scalable fonts, which the Acorn system already supports.

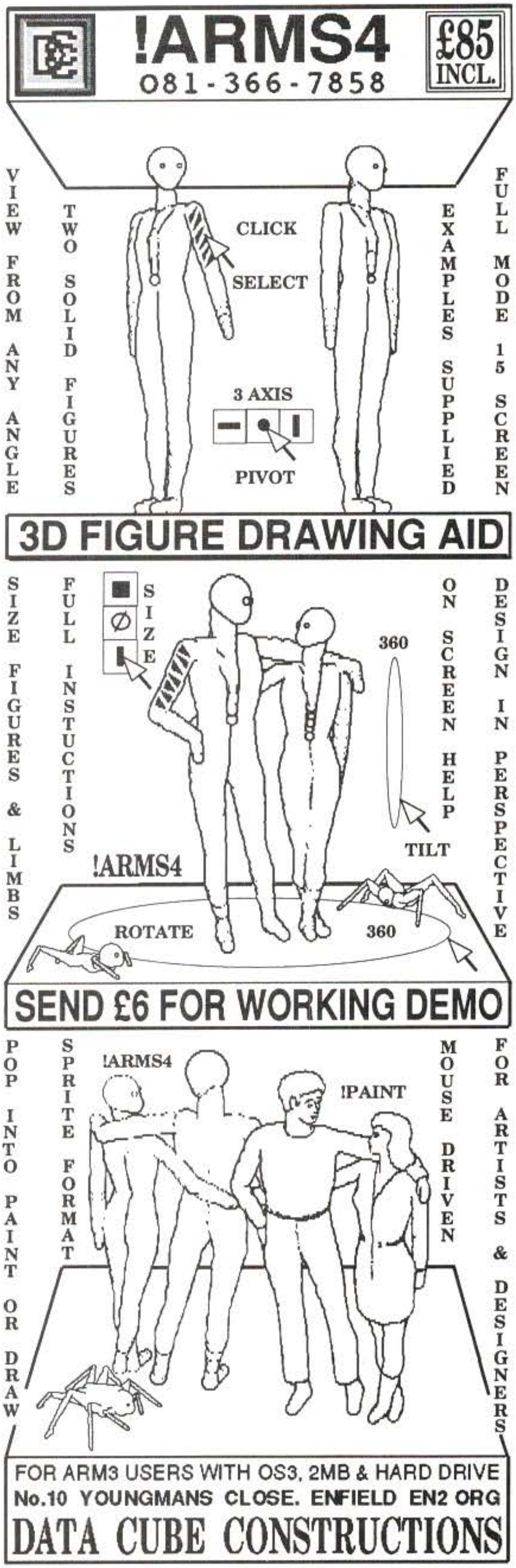
CONCLUSIONS

If you discount the duplication of font features on the grounds that this is true for many printers not intended for the Acorn Archimedes (like the Direct Drives) then the Stylus 800 is a winner.

At a typical price 'on the streets' of around £300 all in, with the extremely high quality and more than adequate noise levels, greater speed, reliability and ease and economy of use, it must now be the first choice for

PRODUCT INFO

Product	*Stylus 800 Inkjet printer*
Supplier	*Epson UK Ltd,* *Campus 100, Marylands Avenue,* *Hemel Hempstead, Herts HP2 7EZ.* *Tel. 0442 61144*
Price	*£445.33 inc. VAT*
Product	*Standard drivers/Pro drivers*
Supplier	*Oak Solutions* *Suite 25, Robin Enterprise Centre,* *Leeds Road, Idle,* *West Yorkshire BD10 9TE.* *Tel. 0274 620423*
Price	*£24.62/£54.00* *or £18.74/£48.12 to education,* *all inc. VAT*
Product	*Turbo Driver for Stylus 800*
Supplier	*Computer Concepts* *Gaddesden Place,* *Hemel Hemptstead,* *Herts HP2 6EX.* *Tel. 0442 63933*
Price	*£57.57 inc. VAT*


!ARMS4
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The PC Emulator Survival Guide (Part 6)

Gordon Gilmore looks at MS-DOS6. Do we need it?

In the first of the part of the Emulator guide I made the assumption that everyone would be using DOS 3.3. Microsoft are now supplying their third upgrade on that. The swiftly abandoned DOS4 was replaced by DOS 5 (which was reviewed in RISC User 5:9), and we now have DOS 6. Should we all be considering shelling out and buying this latest offering? Well, for the greater good of humanity I have made the sacrifice. Was it worth it?

INSTALLING MS-DOS 6

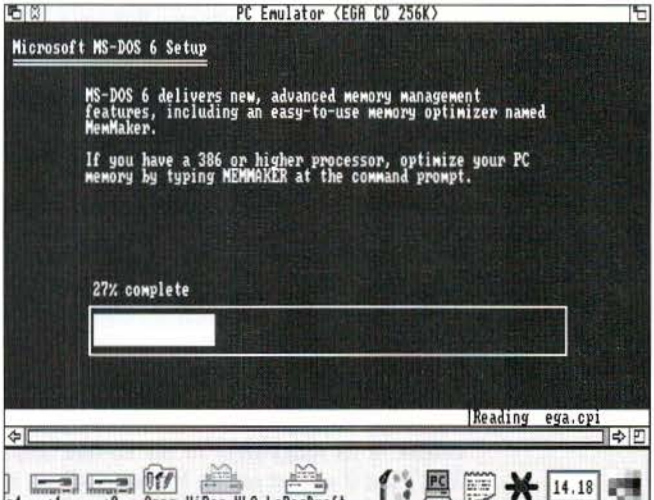
DOS 6 is supplied on three high density discs with a rather slim volume called *Take a road trip with the MS-DOS 6 Upgrade* of which more later. The discs were my immediate problem because my Archimedes only sports a 720K drive. No problem. If you contact the Microsoft Upgrade Centre they will supply you with six 720K discs almost by return of post. To install DOS you insert the first disc and type A:SETUP and do as you are told.

A couple of words of warning! Firstly, DOS 6 will needs a good 5Mb of free hard disc space. Some of this could be recovered later if you are desperate. Secondly, find yourself a comfortable chair and a good book (perhaps even the 'road trip' book) because it can take some time - about 1 hour and 5 minutes on my pedestrian ARM2 machine (longer if you multi-task or fall asleep between disc changes). One of the reasons for this is that much of the data on the discs is compressed and must be decompressed before loading.

Near the start of installation you are prompted to insert a blank disc. This will become an UNINSTALL disc, so that you can later revert to your previous version of DOS if you wish. I personally found this quite reassuring even though I had backed-up everything of significance on the PC hard disc. There is a minor problem at the end of the installation when the SETUP asks for a 'Disc-with-no-name', refuses to accept any other, and refuses to continue. According to the helpline at Microsoft this is apparently because the program assumes that you are using an AT type of BIOS rather than the older XT type, which is precisely what the Emulator emulates. The solution is inelegant but works. Insert the UNINSTALL disc into drive A: and reset the Emulator with Ctrl-Alt-Delete. The UNINSTALL program informs you that DOS 6 has not been installed properly. Merely follow the instructions to quit UNINSTALL without actually doing doing an uninstall and everything should be OK.

WHAT DO WE GET?

Having installed DOS 6 and booted-up I found I had 4.9 Mb less hard disc space and less free RAM to work with, reduced from 602kK to 585K. What am I getting in return? There are a number of 'goodies' which are not in DOS 3.3. Several of them were already in DOS 5 and were reviewed in 5:9. In fact, DOS 6 makes large parts of the Emulator Survival Guide redundant. There is DOSSHELL to make file maintenance easier, EDIT to replace EDLIN (in fact DOS 6 won't even let you run your old copy of EDLIN) and DOSKEY to maintain a command line history, a NUMLOCK command, and, not before time, a MOVE command.

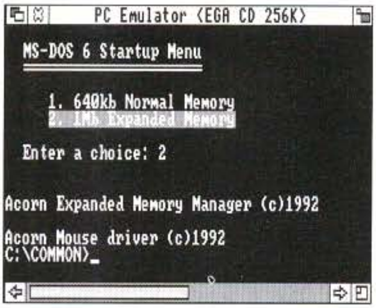


```
Microsoft MS-DOS 6 Setup

        MS-DOS 6 delivers new, advanced memory management
        features, including an easy-to-use memory optimizer named
        MemMaker.

        If you have a 386 or higher processor, optimize your PC
        memory by typing MEMMAKER at the command prompt.



         27% complete

                                               Reading ega.cpi
```

Figure 1. Installing MS-DOS 6

The last two commands are among the extras in DOS 6, some of them not relevant to the Emulator, which were not in DOS 5. Others, such as DELTREE, for removing directories and their contents in one go, are certainly welcome.

Another useful new feature is a number of commands which allow menus to be set up within a CONFIG.SYS file. This means that when the Emulator is booted up you can select the configuration you need from a menu. The second figure shows a simple example intended to reproduce the configuration options we discussed in part 3 of the Survival Guide (to use this particular menu EMS must have been selected in the Emulator !Config file even if you are not going to use it - this wastes 64K of space). The configuration menu facility does have great potential, especially as the chosen option can select its own bits of the AUTOEXEC.BAT file to run. You can even opt to step through the CONFIG and AUTOEXEC instructions one-by-one to check what's going on.

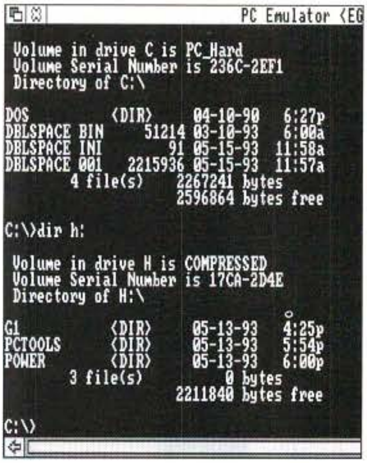


```
PC Emulator (EGA CD 256K)

MS-DOS 6 Startup Menu
═════════════════════

   1. 640kb Normal Memory
   2. 1Mb Expanded Memory

 Enter a choice: 2

Acorn Expanded Memory Manager (c)1992

Acorn Mouse driver (c)1992
C:\COMMON>_
```

Figure 2. CONFIG file menu

HELP

The DOS 5 HELP facility is comprehensive but tedious if all you need is a quick reminder of a command syntax. In DOS 6 it has been supplemented by FASTHELP which provides a speedy but more limited response. The help files supplied with DOS 6 occupy a considerable amount of disc space - up to 1Mb depending upon which of the optional utilities you install. On the subject of help, the book provided with DOS 6 isn't much. It's devoted mainly to new features rather than an in depth coverage. Many entries in its index refer to the on-line help. That's fine if you are on line but not much use if you are trying to get a general understanding of DOS (doesn't everybody read DOS manuals in the bath?). Still, DOS 6 is marketed as an upgrade and perhaps we shouldn't be too critical. The manual supplied with DOS 5 was really first rate.



```
PC Emulator (EG

 Volume in drive C is PC_Hard
 Volume Serial Number is 236C-2EF1
 Directory of C:\

DOS          <DIR>     04-10-90   6:27p
DBLSPACE BIN     51214 03-10-93   6:00a
DBLSPACE INI        91 05-15-93  11:58a
DBLSPACE 001   2215936 05-15-93  11:57a
        4 file(s)     2267241 bytes
                      2596864 bytes free

C:\>dir h:

 Volume in drive H is COMPRESSED
 Volume Serial Number is 17CA-2D4E
 Directory of H:\

G1           <DIR>     05-13-93   4:25p
PCTOOLS      <DIR>     05-13-93   5:54p
POWER        <DIR>     05-13-93   6:00p
        3 file(s)           0 bytes
                      2211840 bytes free

C:\>
```

Figure 3. The directory of the compressed virtual hard drive

EXTRA UTILITIES

DOS 6 is supplied with a number of utilities of which the following are relevant to Emulator users:

- Anti-Virus (from Central Point).
- A Backup Utility (provided by Symantec) which replaces the normal DOS BACKUP command.
- A Defragmentation program to reorganise files on your hard disc to optimise access times.
- A link program to allow laptops to communicate with a desktop PC (might this be used to link your Archimedes to a PC?).
- CD-ROM support.
- Double space - a disc compression utility.

The Undelete and Unformat utilities, supplied by Central Point, are somewhat more comprehensive than the DOS 5 versions. If you need to save disc space, and have your fair share of self-confidence, you can save a considerable amount of disc space by opting not to install Anti-Virus, Backup, Undelete and Unformat.

SAVING SPACE ON DISC

DBLSPACE is a compressed disc operating system claimed to increase your available hard disc storage space by 50-100%. It is possible to compress the whole of drive C: as it stands or to create a second compressed drive from the free space available on the disc. One of the problems with compressing the whole hard drive is that there is no way back! So, being of a nervous disposition I opted for a partial compression to see if it worked. When you run the DBLSPACE program it allows you to specify how much of the free space you wish to use. The compressed drive, called H:, is a virtual drive and as far as the heart of DOS is concerned is a hidden file on drive C:, the DBLSPACE resident utility keeps track of all reference to drive H: and interprets them as necessary. This is curious when you think about it. We have a RISC OS file pretending to be a hard drive on which is a DOS file pretending to be another hard drive!

Using the compressed drive is transparent to the user. Just treat it as any other drive. Figure 3 shows a directory of my 4.26Mb mini-hard drive H: and how it looks in the root directory of the 'real' hard drive. What does tend to throw one is the way that the free space varies as you save a file. The free space quoted at the foot of a directory listing (see figure 2) is not real space but estimated space based upon an assumed compression factor. As you transfer files to the compressed file you find the free space doesn't change as you might expect because the actual compression might be different from that assumed.

One of the nice things about the compressed drive is that, unlike an ordinary hard disc partition, you can change its size at any time. DBLSPACE can also be used to compress floppy discs. Doing this increases the capacity of a 720kb disc to an estimated 1.2Mb. The downside of using a compressed drive is that because decompression is done 'on-the-fly' the performance is rather dependent on the speed of the processor. There may be quite a delay when files and programs are loaded. For example, a particular 300K program takes 27 seconds to load from the compressed drive H: (on my snail-ARMed machine) as opposed to 6 seconds from the normal C: drive. Another disadvantage is that to RISC OS a compressed drive is simply a file (albeit a large one) and the ADFS cannot get at the files stored within it.

MOUSE PROBLEMS

DOS 6 recognises the mouse in the normal way (as long as you run AMOUSE), but there appears to be some incompatibility. The DOSSHELL program obviously recognises the fact that the mouse is connected but doesn't show it on screen - not a lot of use. Other utilities such as EDIT, QBASIC and HELP are more forthcoming and do display the cursor, as a curious blue striped blob, and perform as expected. I have had no mouse problems running other DOS applications such as Borland's Quatro-Pro 3.

SHOULD WE RUSH OUT AND BUY IT?

This is difficult. There is a lot in DOS 6 which I particularly like and, admittedly with little practical experience so far, seem to work with the Emulator. Against this is the extra memory needed to run it and the extra space occupied on the hard disc. But then that can always be recovered with some to spare by using DBLSPACE compression. I'm going to miss EDLIN because it was quicker for simple tasks than the new EDIT. I suppose the crunch question is 'Am I going to keep it or go back to DOS 3.3?' I'm sorry, but at the moment I don't know! I suspect that inertia will win over and I shall keep DOS 6 installed.

Gordon Gilmore would welcome feedback, queries and suggestions for future articles from other PC Emulator users.

PRODUCT INFO

MS-DOS 6 currently costs £49 plus VAT from PC dealers. The 720K disc set can be obtained by telephoning the Microsoft Upgrade Centre 081-614-8000. Technical help on DOS 6 can be obtained on 0734-271900 but don't ring at peak times unless you like music and Microsoft advertisements while you queue.

WOXRD

THE ULTIMATE CROSSWORD APPLICATION

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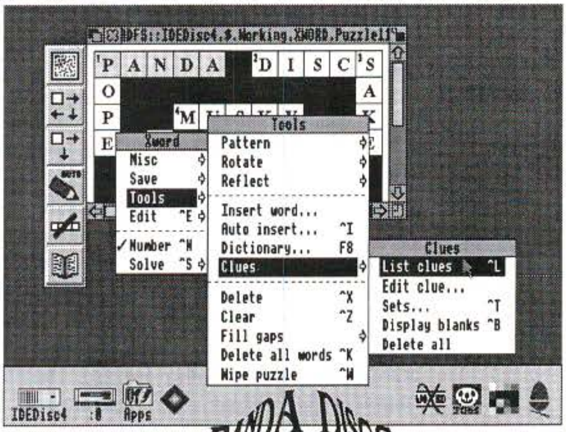


Into the Arc: Running Basic Programs

by Mike Williams

From time to time we receive phone calls or letters from Archimedes users asking us how you type in program listings from the magazine, or, how do you package Basic programs to run from the Desktop. This was raised briefly in last month's *Write-Back* pages, but I thought it was worthwhile devoting this month's *Into the Arc* to expanding on the answer given there.

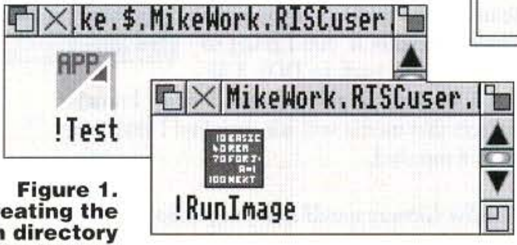


Figure 1. Creating the application directory and installing the Basic program

If you have been using another computer before buying an Archimedes with its sophisticated Desktop approach to life, it is easy to feel cut off from the command line approach of other machines. In such instances new users are apt to ask themselves how they can abandon the Desktop and return to what at that stage seems a more familiar and comforting environment. However, your Archimedes has built in all the tools you need to create and edit Basic programs, and to package them up so that they appear within a Filer window looking like any other application.

Let me make one point clear: we are not dealing with multi-tasking Wimp programs. They represent a further order of complexity beyond the scope of this column (*Wimp Programming for All* published by RISC Developments provides an excellent introduction to this subject). What we are concerned with are straightforward ordinary Basic programs (like the DragASprite programs in this month's *Just a Page*), or maybe ones you have been using on a previous BBC micro or other machine. You will, of course, need to convert all programs to BBC Basic before proceeding.

CREATING AND EDITING PROGRAMS

Under RISC OS 3, Edit is perfectly adept at creating and editing Basic programs. Run Edit and then click the Menu button over Edit's icon bar icon. Select *Create* and then *BASIC* to open a window. You can now type your program, replete with line numbers, into this window. If you use Edit's Save option you will see that the resulting Save box provides a Basic file icon for your file. A program can be saved by dragging this icon to any open Filer window. If you already have some Basic programs, perhaps ported from another machine, they can be loaded into Edit simply by dragging the program's icon to Edit (on the icon bar).

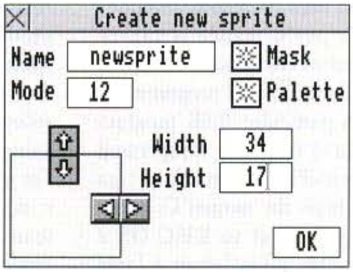

Create new sprite
Name newsprite ☒ Mask
Mode 12 ☒ Palette
Width 34
Height 17
OK

Figure 2. Standard settings for creating an application icon in Paint

The only proviso is that the program must have the correct Basic filetype. If the filetype is wrong, click once with the Menu button over the program's icon in a Filer window. Choose the second option (*File '.....'*) and slide right to the submenu. Move down to the *Set type* option and slide right again; remove the default *Text* entry (press Ctrl-U) and enter "Basic". The filetype will be changed accordingly.

If you don't have RISC OS 3, you can't use Edit in this way, but RISC Developments' DeskEdit provides the answer, and even under RISC OS 3 has much more for the Basic programmer than Edit.

RUNNING AND DEBUGGING BASIC PROGRAMS

Any Basic program which has been saved to disc can be run simply by double-clicking on its icon in a Filer window. What happens next depends very much on the program. In some cases a window will appear on the Desktop within which is displayed the result of running the program; in other cases the Desktop will disappear and the program will take over the whole screen. At its conclusion a message will automatically appear to the effect "Press SPACE or click mouse to continue". Performing this function restores the Desktop display.

Apart from its inherent crudity, this approach has a significant disadvantage when debugging - you have no immediate access within Basic to your program. You can't list bits, test variables or anything else. One solution is to go to the Task Manager (the green acorn icon), and choose the *Task window* option from the menu (or just press Ctrl-F12 for the same result). You can now enter commands to select Basic, load and run your program, and perform all your usual debugging techniques, while still using Edit to edit and save the program.

PACKAGING PROGRAMS

Given that we have a correctly working Basic program, what we want to do is to package it up so that it looks good in a Filer window alongside other applications. The first task is to create an *application directory*; just click with the Menu button over a Filer window and select the *New directory* option. Enter any suitable name of your choice, but make sure that the first character is a '!' (pronounced 'pling'). If you have done this correctly, then instead of the normal blue directory icon you will see one with an Archimedes 'A' and the letters 'APP' in the top left-hand corner.

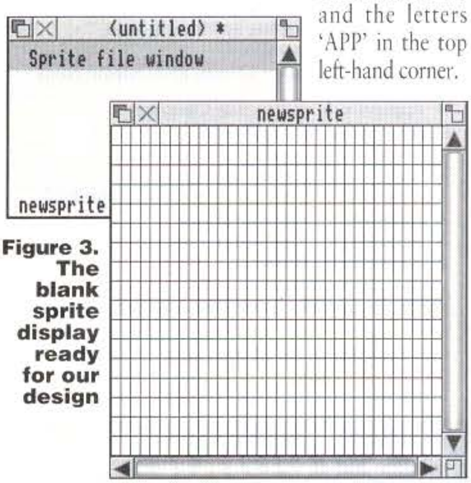


Figure 3. The blank sprite display ready for our design

Now hold down the Shift key and double-click over this icon, and the application directory will open. For a start, your Basic program can be copied into this otherwise empty directory. By convention, the application directory is given the name of the application, and the program within is normally entitled *!RunImage*, so make this name change (see figure 1).

There are two more things we must do to complete the packaging, each of which involves creating a further file to be saved within the application directory. At the moment our application has a default icon supplied by RISC OS, but it is much more impressive to design something unique yourself using Paint. With Paint loaded, click with Select on its icon, which results in a small window appearing (figure 2). For our current purpose we need a mode 12 sprite, 34 by 17 pixels, and with *Mask* selected. It should also be given the name of your application (including the '!' character but wholly in lower case). Click on 'OK' and you will be left with two small windows, one saying *Sprite file window* at the top, and the other entitled *!test* (or whatever name you have chosen). Using Paint you can now design your icon, but it is usually a good idea to zoom in by a factor of 8 or so to make the icon of a more manageable size for working on (figure 3). When your design is complete, click with the Menu button over the Sprite file window, select *Save* and save the sprite file with the name !Sprites within the application directory. Your application's icon won't change immediately, but don't worry about this.

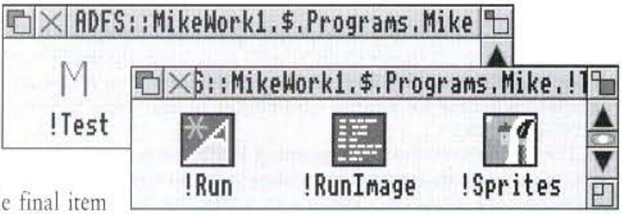

ADFS::MikeWork1.$.Programs.Mike
!Test
$::MikeWork1.$.Programs.Mike.!T
!Run
!RunImage
!Sprites

Figure 4. The completed application with its own icon

The final item required is a file of type *Obey* called *!Run*, again saved in the application directory. This sounds worse than it is. To create such a file, go back to Edit, and using Menu over its icon bar icon, select *Create* and then *Obey*. A normal looking Edit window will open and you should enter the following lines:

```
Set Test$Dir <Obey$Dir>
WimpSlot -min 32K -max 32K
Run !RunImage
```

Don't be put off - often, not all of these lines are essential anyway. *Obey$Dir* is a standard *System variable* which is set to the pathname of the application. It is customary to create a further system variable, starting with the name of the application (*Test* here), to which this is copied with the syntax shown. Should the application wish to refer to any other (say, data) file within its directory, then the reference in the program would be to:

```
<Test$Dir>.data
```

With this approach, it makes no difference where an application is stored; it will always work.

WimpSlot allocates memory for the application - if a program fails to run try increasing the '32' to something larger, but for small basic programs as little as 8K will often suffice. The most important (and essential) line is the last one, which actually runs your Basic program. On termination you will get the standard prompt to return to the Desktop.

Well there you have it. Follow the guidance given above, and all your Basic programs can be packaged up to look just as smart on the Desktop as the most sophisticated of commercial applications.

Wimp Programming for All
on Acorn RISC Computers
by Lee Calcraft and Alan Wrigley

Reprinted with revisions for RISC OS 3

This book provides programmers with a complete introduction to all the principal techniques involved in writing multi-tasking Wimp programs to run within the RISC OS Desktop environment. No prior knowledge of the Wimp is assumed and the tutorial style of the book will enable all programmers to understand the concepts involved and to develop their skills in writing high quality programs within the Desktop environment.

> ...The declared aim of this book is to provide "a complete solution for those who wish to get to grips with programming the Wimp". Wimp Programming for All easily meets this objective and is an excellent purchase for anyone who wishes to learn how to write WIMP applications...
>
> ...The author's method of explaining WIMP programming is to build up a working application, adding more features as new techniques are acquired... This is a very effective learning method and the programmer who faithfully works through these applications will certainly learn to program the WIMP.
>
> ***Archimedes World, July 1993***
>
> ...The 192 pages are crammed with useful info that in some places goes into considerable detail...
>
> ...The authors not only tell the reader 'how to' but give guidance on how to do things efficiently - not all the same thing!
>
> ... The RISC Developments book is more comprehensive...
>
> ***Acorn User, July 1993***

To support the book there is a disc containing all the programs (at different stages of development) as listed within the book, together with additional supporting applications. All example programs are given in BBC Basic.

Wimp Programming for All is proving to be the definitive book on this subject for all users of Acorn RISC computers. Only 9 months after its launch the book has already been revised and reprinted.

The book consists of ten main chapters and a number of appendices:

- Chapter 1: Introducing the Wimp
- Chapter 2: Windows
- Chapter 3: The Wimp Poll Loop
- Chapter 4: Error Handling
- Chapter 5: Icons
- Chapter 6: Menus
- Chapter 7: Redrawing Windows
- Chapter 8: The Wimp Message System, Loading and Saving Data
- Chapter 9: Templates
- Chapter 10: Printer Drivers and Outline Fonts

- Appendix A: Indirection Operators
- Appendix B: Using RISC OS 3
- Appendix C: Application Resources
- Appendix D: Setting up a sprite area
- Appendix E: SWI calls described in this book
- Appendix F: Associated Disc
- Appendix G: The Wimp Programmer's Toolkit
- Appendix H: DeskEdit

SPECIAL OFFER - ONLY WHILE STOCKS LAST!
We have a limited number of the first printing still available at the special price of £6.95 (£7.95 with Disc).

New version available by 31st August

Wimp Programmer's Toolkit V. 3
an essential aid to any programmer - now upgraded with five new powerful utilities

FOUR NEW APPLICATIONS:

- **BASIC PROCEDURE AND FUNCTION ANALISER**
- **POLLMASK** - generates Wimp poll mask numbers.
- **FLAGS** - allows you to calculate Icon, Window and Menu flags.
- **BASIC VARIABLE LISTER** - lists all variables (including arrays), procedures and functions used in a program.

PLUS THE INVALUABLE:

- **RISC USER WIMP LIBRARY** of Wimp applications and procedures.

IN ADDITION TO:

- **WIMP DEBUGGER** allows you to debug Wimp-based programs while testing and running them.
- **EASYWIMP** provides a ready-made Wimp application shell to be used for the creation of single-window applications.
- **FORMED** - the latest version (V 1.26) of Acorn's Template Editor for designing windows and icons.
- **ICONBAR SHELL GENERATOR** allows you to build simple multi-tasking programs by creating a shell.
- **DESKTOP FILE LOADER** allows you to load a program from the Desktop, rather than run it.
- **MENU EDITOR** - allows you to create and edit Wimp menu structures for use in your own programs.
- **WIMP MESSAGE MONITOR** provides a means of monitoring the Wimp polling system.
- **SPYGLASS** - displays the contents of memory allocated to any task currently running.
- **TEMPLATE FILE BROWSER** allows you to view the contents of a template file.
- **WIMPAID** allows pointer, window and icon parameters to be dynamically displayed on screen.

BK12b	**Wimp Programming for All book**	**12.95**
BK13b	**Wimp Programming for All disc**	**4.95**
BK11b	**Wimp Programming for All book and disc**	**14.95**
BKX2b	**Wimp Programming for All book (offer)**	**6.95**
BKX1b	**Wimp Programming for All book and disc (offer)**	**7.95**
PWK3b	**Wimp Programmer's Toolkit V. 3 and manual**	**17.95**
PWKUb	**Wimp Programmer's Toolkit V.3 Upgrade**	**4.95**

All prices are inc VAT.
Please add £2 p&p in each case (£3 for Europe, £5.50 elswhere).

RISC Developments, 117 Hatfield Road, St Albans, Herts AL1 4JS. Tel 0727 840303 Fax 0727 860263

HINTS & TIPS

Keep sending in your hints on anything relevant to the Archimedes range.
And remember, we pay for every hint we publish.

A QUICK SAVE

Daniel O'Connor

When writing a program, it can be very tempting to type RUN, to see the effects of a minor change, without bothering to save the program first. This can have tragic consequences if the program causes the computer to hang, and the only way out is the Reset button.

If you enter the following line at the very start of your program:

```
    SYS "OS_File",10,"PROGRAM NAME",&FFB
,0,PAGE, LOMEM
```

you can type RUN as many times as you like, with the knowledge that your program will be safely saved every single time.

CREATING AIM IMAGES WITH ChangeFSI

Pieter Schmidt

The documentation supplied with *ChangeFSI* is not very helpful when it comes to converting Sprite files to the *AIM* file format for processing with the *AIM* image processing software (RISC User 6:7).

The process is actually very simple, although it cannot be performed from the Desktop. Press F12 to obtain the command line and, enter the following at the prompt:

```
    ChangeFSI input output aim = =
```

where *input* and *output* are the source and destination names of the image you want to convert. The two '=' signs specify that the image must be converted to 256*256 size.

In fact, you are not limited to converting only Sprite files to *AIM* format. Any image format that *ChangeFSI* supports can be converted into an *AIM* file. This is very useful as default RISC OS sprites do not give the best results with *AIM*.

ZOOL CHEAT

Zool Man

Here is a fantastic tip from the *n*th dimension. At either the Title or the Options screen, enter the word *PICKEREL*. The border will flash blue, and the following keys will come into effect:

PageUp - jump to the next level
Home - jump to the next world
+ (numeric keypad) - invincibility

Be careful when you use the invincibility key. If you subsequently collect an invincibility token, when the effects of the token wear off, you must press the + key again.

GETTING IN A TWIST

Peter Bond

There is a minor problem with the Envelope mould in *ArtWorks*. The manual states that the four sides of the mould can be curved or straight. The program, however, insists that they can only be curved. (The error message complains that the object is not four-pointed.) If you need one or more straight sides, the best thing to do is to draw the shape with the straight line tool, and then, selecting the corners in pairs, change the lines to curves. They will thus become straight Bezier curves.

FaxPack HOT PHONE

Lee Calcraft

When using Computer Concepts' FaxPack, it is not always obvious when the device is on line. This is indicated by the handset on the telephone icon being raised, and the word *Auto* underneath the icon being changed for *Sending* or *Receiving*. But this does not easily catch your eye. However, there is a very easy way to make this much more prominent: simply change the colour of the appropriate telephone icon to red.

To do this, open the *!FaxMgr* directory, load the !Sprites file into Paint, and edit the *fp-offhook* sprite by changing all the cream pixels to red. This works a treat. *A suitable sprite is supplied on the magazine disc, with Computer Concepts' permission.*

AN IMPRESSIONIST'S BUG

Alan Bonsor

There is a bug in *Impression* that could cause you some concern if your latest masterpiece had not been saved and the error occurred. In the

Dictionary window, if you move to the end of the Z category and then click Adjust above the slider in the vertical scroll bar, an error box will appear with the message *No such category*. Clicking on the OK button causes the error box to close, but it immediately reopens with the same error message. To close the error box, you need to click on the OK button seven times. The error is not fatal and will not corrupt your document in any way.

UNTIMELY EXITS

Martin Dale

Acorn's *Alarm* application can cause an unexpected and unwanted *shutdown*. If you attempt to save an alarm, by clicking on the *Save* icon or pressing Return after entering the third line of the message, without telling *Alarm* where to save it, *Alarm* will warn you that *the alarms cannot be saved because you have not set the filename*.

If you then attempt to exit the Desktop, by clicking on *Exit* on the Task Manager menu, you will get a warning from *Alarm* that *the alarm database has been modified*. You then have to choose to *Save and quit*, *Quit*, or *Continue Alarm*.

If you select *Save and quit* or *Quit*, a *shutdown* is performed, as if you clicked on *Shutdown* on the Task Manager menu.

TAKING ADVANTAGE OF RISC OS 3

Richard Hallas

If you want your programs to take full advantage of the new facilities offered by RISC OS 3, it is necessary to pass a version number >=300 in its Wimp_Initialise call. (300 is suitable for both RISC OS 3.0 and 3.1.) There is a problem with this, however. Any program which passes a version number >=300 will cease to work under RISC OS 2. Thus to allow your program to take advantage of RISC OS 3 yet still work under RISC OS 2, an initialise routine similar to the following is necessary.

```
  DIM block% 256
  *Set AppName$RISCOS 3
  *RMEnsure UtilityModule 3.00 Set AppNa
me$RISCOS 2
  SYS "XOS_ReadVarVal","AppName$RISCOS",
block%, 256,0,0 TO ,,len
  block%?len=13 : wimp$=$block%
  *UnSet AppName$RISCOS
  IF wimp$>="3" THEN
    DIM message% 28
    message%!0=&400C1:message%!4=&502
    message%!8=4:message%!12=3:message%!
16=2
    message%!20=1:message%!24=0
    SYS "Wimp_Initialise",300,&4B534154,
"AppName", message% TO wimp,task
  ELSE
    SYS "Wimp_Initialise",200,&4B534154,
"AppName" TO wimp,task
  ENDIF
```

The variable *message%* is a pointer to a list of RISC OS messages that you program will accept. This list must be supplied if the version number is >=300. The messages can be specified in any order, but the last one must be message 0 (quit). The variable *wimp*, returned by Wimp_Initialise, contains the precise version number of the operating system in use, multiplied by 100 (i.e. 310 for RISC OS 3.1), and you should make liberal use of this variable within your program for determining which actions to take. For example, where you would use the standard Wimp_DragBox call under RISC OS 2, under RISC OS 3 you should use the *DragASprite* module.

UPDATING APPLICATION SPRITES

Lee Calcraft

If you are editing a sprite for an application, when you save it back into the application's directory, the old sprite still remains on display in its directory viewer. This makes it hard to evaluate the effect of your design.

There are three ways to make the new sprite appear (without resetting your machine). The first is a little boring. Go to the command line and type:

```
IconSprites adfs::4.$.!MyApp.!Sprites
```

or whatever, making sure you give the full pathname of the !Sprites file containing the new sprite.

The second is the easiest, but only if the application has a *!Boot* file that contains an *IconSprites <Obey$Dir>.!Sprites* command. Simply double-click on the *!Boot* file.

The third way is to click Menu over the application's icon in its Filer window, and rename it to something different (e.g. add an *x* to its name - so *!MyApp* would become *!MyAppx*). Then rename it again with its proper name (e.g. by removing the *x*), and the application will display the new sprite.

SLOWING DOWN

Pieter Schmidt

If you have an ARM 3 based system such as the A5000, certain programs may run too fast to be usable. For example, *BalloonMan*, on the RISC User *ArcOmnibus* games disc, is totally unplayable with the ARM 3 cache turned on.

Several PD utilities exist that allow you to turn the ARM 3 cache on and off from the Desktop, but if you don't have one of these, you have to access the command line to do it.

A much easier way of controlling the cache is to create two Obey files called *CacheOn* and *CacheOff* with the commands Cache On and Cache Off respectively. Save the two files and place them on your PinBoard or sticky backdrop. You can now control the ARM 3 directly from the Desktop.

USING INTERFACE WITH FormEd V1.26

Richard Hallas

Acorn's template editor *FormEd* does not support the 3D borders provided by Simon Huntington's *Interface Manager* module. *Interface Manager* is a public domain module that provides 3D icons and borders similar to those now available under RISC OS 3, as well as several other useful SWIs for interfacing with RISC OS. Various public domain template editors exist that support this module, but here is a modification that will allow *FormEd* version 1.26 (available on RISC User Disc 6:7) to display *Interface's* 3D borders. Firstly, add the following lines:

```
  161 Interface=FALSE
  162 *SetEval Interface$Present 1
  163 *RMEnsure InterfaceManager 0 SetEv
al Interface$Present 0
  164 SYS "OS_ReadVarVal","Interface$Pre
sent", fontcounts%,255
  165 *UnSet Interface$Present
  166 IF fontcounts%?0=1 THEN Interface=
TRUE
 3015 IF Interface THEN SYS "Wimp_Border
Window", q%
```

Then amend lines 5480 and 5550 to read:

```
 5480 SYS "Wimp_ForceRedraw",!q%,(q%!4)-
18, (q%!8)-18,(q%!12)+18,(q%!16)+18
 5550 SYS "Wimp_ForceRedraw",!q%,(q%!8)-
18, (q%!12)-18,(q%!16)+18,(q%!20)+18
```

Lines 161 to 166 check if the *Interface* module is loaded. Line 3015 applies 3D borders to icons with the correct validation strings if *Interface* is present (otherwise the icons will appear as they normally do in *FormEd*). Lines 5480 and 5550 are altered to increase the bounding boxes of the icons, as the 3D borders are drawn external to the icons.

SPRING CLEAN

Alan Bonsor

Keyboards have an unfortunate tendency to get very dirty, very quickly. If you are one of the dedicated types who, instead of washing the car on a Sunday afternoon, washes the keyboard instead, take heed of this warning. Removing the keys from an A5000 keyboard can cause horrible problems.

Every key is mounted on a spring, which, when the key is pressed, makes contact with a pressure sensitive circuit board. When you remove a key, its spring is invariably stretched. If it is stretched by more than about half a millimetre, it will end up making either intermittent or permanent contact with the circuit board. This can cause spurious characters to appear while you are typing, as pressing on a key in the vicinity of a faulty one may provide just enough pressure for the lengthened spring to touch the circuit board.

The solution is to identify the faulty key and 'squash' the spring between your thumb and forefinger for about 30 seconds. In order to prevent it happening, don't take the keyboard apart in the first place.

A TIGHT FIT

Herbert zur Nedden

If you have discovered that 800K of files and directories on a hard drive, as reported by Count, will not fit on an 800K disc, you will probably be aware of the fact that a single directory, even when empty, takes 2K of disc space. This space is not counted by the *Count* option on the Filer menu.

A quick way of seeing whether a collection of files and directories will fit on an 800K disc is to create an 800K RAM disc and copy everything onto it. If they fit on the RAM disc, they'll fit on a normal disc.

AdvanceFONT?

John Phillips

The Spreadsheet application in Acorn's integrated software suite, *Advance*, does not work if you have more than 64 fonts installed. The problem occurs as soon as you click on *Spreadsheet* in the Advance menu. The hourglass will appear on screen for several seconds, after which an error will occur, informing you that there are *Too many items for menu*. The error does not occur with the other applications in the suite.

Acorn's official response is to recommend that you split your fonts into several directories. *The RISC User Font Manager on this month's magazine disc provides a perfect solution to this problem.*

Julian Burman – Arc Sec. →

RISC User Public Domain Library

★ *NEW* ★
Aug/Sep
1993

★ PDX9★

This disc contains a collection of image processing software. ***Process*** is a powerful 256 colour image processing application described in RISC User 6:9. ***Translator v7.12*** is the popular public domain image conversion utility. ***Creator*** converts sprites into non-Acorn formats. ***GreyEdit*** is a 256 greyscale image processor.

PDY1 - Database Management

***Powerbase* v4.91** is a powerful database management system written by Derek and Steven Haslam and available as Shareware. It contains most of the features found in expensive commercial packages. Full database systems with interactive user interfaces can quickly and easily be designed. Powerful data validation facilities are available, and the system provides a full script language. The software comes with extensive instructions and a tutorial in the form of an on-line manual. Three sample databases are also provided, including one of chemical elements and their properties. This is an essential item for the home or school computer.

PDY2

A collection of superb utilities including ***Out To Lunch*** (attractive screen saver), ***KeyWindow*** (on-screen function keystrip), ***TemplEd*** (an alternative to Acorn's *FormEd*), ***Menon*** (version 2.06 - the latest version of this application launcher), and ***BlibII*** (the Basic V Library management system).

PDY3

The Software Developer's choice: ***Zap*** (version 0.90 of this very flexible file editor), ***ArmSI*** (a comprehensive speed indexer), ***ArcTools*** (50 *commands including memory and disc editors), and ***Glazier*** (yet another template editor).

PDY4

If you've ever wondered how the graphical effects are achieved in demos and games, ***DemoFX*** will show you how to create them. Makes writing scrolltexts and starfields easy. And ***Tertis***, the stunning implementation of *Tetris*.

For more information on PDY1,2,3 &4 discs please refer to the article by Simon Burrows in RISC User 6:8 (July 1993).

Our Public Domain discs contain as near as possible to 800k (and not less than 700k). Each disc includes a 'Read Me' file, and instructions are included with the programs. The discs are offered as seen and are available to RISC User members only for the price of just *£1.60* each.

To order tel. ***0727 840303****, fax* ***0727 860263****,*
or write (quoting membership number) to:

A full list of PD software is available in return for a SAE.

RISC Developments.
117 Hatfield Road,
St. Albans,
Herts AL1 4JS.

This month the software has been updated with newer versions on the following discs:

PD41, 45, 50, X1, X2, X3, X4, X7, Y1 *and* Y3

Public Domain Special Collection

These discs are still available at the standard price of **£1.60** *(inc. VAT and p&p).*

PDX1	**Draw Plus**	Extended Draw
	Label	Label printing
PDX2	**AddressD**	Address labels
	AGP	Advanced graph plotter
	Daily	Screen clock
	Draw Cross	Crossword generator
	Memphis	RAM filing system
PDX3	**ArcFS**	Decompression utility
	Risc BBS	Bulletin Board system
	Impulse II	Inter-task communication
PDX4	**ArcFS**	Decompression utility
	PVray	Ray tracing
PDX5	**Hangman**	Classic game
	Interface	Classic Wimp display
	Menus	Wimp menu editor
PDX6	**SuperGram**	Sophisticated anagram finder
PDX7	**365 Days**	Thought of the day
	Dissi	Disassembler
	Eazicopy	Disc copier
	FileTree	Analyses directories
	FileUtils	Icon bar utilities
	GateKeeper	Virus protection
	IconMatch	Pelmanism game
	Interfero	Virus protection
	Links	Software application links
	Manager	Disc indexing
	Menon	Application launcher
	PackDir	File compaction
	QMC	Mode change utility
	Scanner	Virus protection
PDX8	**AIM**	Image processing

The software on PDX1 to PDX5 was described in RISC User 5:7 (June 1992), PDX6 and PDX7 were covered in RISC User 6:3 (Jan/Feb 1993), PDX8 was dealt with in RISC User 6:7 (June 1993).

RISC Developments*, 117 Hatfield Rd, St Albans AL1 4JS Tel 2727 840303 Fax 0727 860263*

C Notebook: Hints & Queries

Compiled and Linked by Lee Calcraft

THE 3D SLAB BUG REVISITED

We have had a certain amount of correspondence regarding the 3D slab bug reported in C-Notebook 6:6. Thomas Down and David Lenthall rightly point out that you can avoid the bug by using FormEd to alter the button types of the offending icons. For example, button type 4 will cause no problem because the task is only informed when the button is released. As David points out however, there is no *release* version of the *menu* button type (type 9), so you cannot get 'OK' buttons etc. to behave as they should.

David has successfully used the technique for avoiding the bug suggested in 6:6, but has occasional problems with Save boxes. The solution is to include a few extra calls to *event_process()* for luck, as suggested in 6:6. I have been using the following code without any problems. Of course you can always use the bug-fix module supplied on the 6:7 disc.

The principle behind this code is to wait for the mouse button to be released, and then perform 10 further *event_process()* loops for good measure.

```
_kernel_swi_regs r;
int i;
event_setmask(0);
do
{
  _kernel_swi(OS_Mouse,&r,&r);
  event_process();
} while (r.r[2] != 0);
for (i=0; i<10; i++) event_process();
exit(0);
```

VARIABLE ARGUMENTS FOR LIBRARY FUNCTIONS

Sanjay Pattini

C's ability to pass variable length argument lists to specified functions - as used with *printf()* for example - is an extremely powerful feature. And it is possible to make use of this in your own library functions.

For example the following function will tick/untick a whole set of menu entries:

```
void menuext_tick(menu themenu, int no,
...)
{
  int i,tick;
  va_list tstates;

  va_start(tstates,no);
  for (i=1; i<=no; i++)
  {
    tick=va_arg(tstates,int);
    menu-setflags(themenu,i,tick,FALSE);
  }
}
```

The first parameter specifies the menu, and the second, the number of entries to be altered. The remainder are a series of ints indicating which entries are to be ticked (1), and which not (0). Thus:

```
menuext_tick(mymenu,5,1,1,0,0,1);
```

would tick the first, second and last entries in a five-entry menu.

FATALITIES WITH win_settitle()

Michael Rozdoba

An undocumented feature of the function *win_settitle()* is that it assumes that the window to be altered has no more than 200 icons. Calling it with a window containing more icons than this will result in a fatal crash.

FINDING THE STATE OF A txt OBJECT

Lee Calcraft

If you know the *txtedit_state* of a *txtedit* object, there is no problem in finding its corresponding *txt*, *t*; it is just *s->t*, where *s* is defined as:

```
txtedit_state *s;
```

Sometimes, however, you know (or can find) t, but cannot derive a pointer to the *txt*'s *txtedit_state*. But there *is* a way. The function:

```
txt_readeventhandler()
```

returns both the *txt*'s event handler function, and the handle which was passed to it when it was established. The latter (providing it has not been replaced) is a pointer to the *txt*'s *txtedit_state* cast as a pointer to void.

Given a *txt*, *t*, the following code will obtain the corresponding *s*:

```
txt_event_proc func;
txtedit_state *s;
txt_readeventhandler(t, &func, (void **
) &s);
```

Please send us your C hints - all published hints will be paid for.

WRITE - BACK

FONT RESTRICTIONS

One of the real strengths of Acorn's RISC machines is their outstandingly good font system. Despite the irritation caused by applications which can only handle a limited number of fonts, and the fact that the number of fonts available is relatively limited, we really have very little to complain about; the Acorn Font Manager is on the leading edge of technology, and after five years is still far better than any comparable system on other machines.

However, all is not as good as it seems. As a typesetter of music and frequent producer of concert programmes and posters, I often want to produce documents which contain the names of composers, and these names frequently include unusual characters. For example, Dvorak should have a caron (like an inverted circumflex) over the letter 'r'. Until recently I had been unable to reproduce such characters within normal English (Latin 1) using Impression or Ovation.

However, a short time ago I received the latest version (0.31a) of Acorn's FontEd, which will load RISC OS 3 fonts. I used it to examine the ROM fonts supplied with RISC OS 3, and was surprised to find that the character sets of these fonts have been considerably extended to include all the characters referred to in the ***/Base0*** *encodings file (which resides in the* ***Resources.Fonts.Encodings*** *directory). All the characters needed for the Latin 1 to Latin 5 character sets are provided in all three font families. However, I was still unable to find out how to obtain these extra characters in my documents, so I contacted the Electronic Font Foundry (who designed the new RISC OS 3 font format) for assistance.*

The answer was as helpful as it could be under the circumstances. Incredible as it seems, Acorn decided not to implement the full system designed by EFF. The Base0 character map has been implemented, and in theory this gives direct access to all the characters in Latin 1 to Latin 5. However, Acorn has restricted the system so that only Latin 1 characters are available under RISC OS 3.10. All other characters are wasted; the best you can do with them is to drag them out of the FontEd window into Draw (or similar) and use them as normal path objects rather than as real font characters.

This seems extremely short-sighted, and I can only hope that the full implementation has just been delayed until a later version of RISC OS. I for one would greatly appreciate the availability of non-Latin 1 characters, and I'm sure other users would too. I very much hope that Acorn will be addressing this situation in the near future. What does anyone else think?

Richard Hallas

CALL FOR MORE A4 SUPPORT

In reply to a letter in your ***Write-Back*** *column regarding support for the A4, I also own this machine, and know only of Atomwide who have produced three products with the portable in mind: a micro trackerball, RemoteFS, and Printer/SCSI. RemoteFS is a filing system which enables the A4 to be linked by either parallel or serial port to another Archimedes, allowing the two machines to access each other directly. Printer/SCSI is a SCSI adaptor which uses the parallel port.*

True, the SCSI adaptor does open some opportunities for expansion: CD-ROM, scanners, and larger hard drives, but what is really required is the equivalent of a ***docking station*** *to enable A4 users to accommodate the wide variety of existing podules. Surely it is in the developer's own interests to ensure that their products reach the widest number of Archimedes users possible - A4 included.*

After asking as many hardware producers as I could at the Harrogate show, the response was always "Not enough demand". We can only make our presence felt by writing to the magazines and popularising the product which we own. It is unfortunate that some users, like myself, require the specific advantages of the portable, but cannot afford the luxury of a desktop machine as well.

Tim Dagger

We expect to review both RemoteFS and the Printer/SCSI adaptor in the near future.

EXPERIENCES WITH A CANON BJ200

Mike Williams' review of the BJ200 printer and Computer Concepts' Turbo Driver (RISC User 6:5) interested me, as I had recently purchased one myself, after a very convincing demonstration at an Acorn Open Day. I am very pleased with its impressive performance, but as with all new pieces of equipment there have been some surprises. As a result I have decided not to part (yet) with my old Star LC-10.

An annoying quirk is that it completely takes over responsibility *for positioning the paper. I tried to print something lower down a partly printed page, by loading the paper and doing a few line feeds. As soon as I issued the 'print' command it threw the paper out and loaded a new sheet!*

In my family history research I use Draw+ to produce family trees, some as large as four A4 landscape pages. The LC10 printed these on continuous paper with no trouble. Unlike the TV advert, the Canon can't. After just over an inch on page 2 it abandons the the print and ejects the paper. I have written to Canon and they say that the maximum paper length is 14 inches. I would love to know if there is a way of over-riding this. In the meantime I am using ***Tiler*** *to print separate pages which can then be stuck together. However, the increase in speed really is fantastic. My original A3000 with Acorn printer driver took 20 minutes per page; the A5000 with Turbo Driver takes just over a minute per page.*

Hedley Hunnisett

The Canon BJ200 printer (and similar models from Canon and other manufacturers) are effectively page printers, following the trend already well established by laser printers. It can be infuriating when any piece of equipment tries to say "I know better", but that is perhaps part of the price we pay for otherwise excellent quality. The only answers to Mr Hunnisett's needs are some form of tiling, for larger than page size printing, as he suggests, and to reposition output to the bottom half of a page before printing to partly used paper.

COMPATIBLE WORD PROCESSING

I am, to be honest, mainly interested in word processing/DTP and found the article in this month's RISC User ***(Group Survey: Word Processors*** *in 6:8) exceptionally interesting. While it did not, in fact, tell me anything I did not already know, it did confirm my views and feelings which, working in 'Acorn-isolation' as I do, I found supportive. I have learnt to deal with Pipedream IV with all its idiosyncrasies and prefer it. I also have Wordz. In the last paragraph of his article, Alan Wrigley mentioned Arnor's Protext. Two copies of this program, to run on a PC and an Archimedes respectively, arrived in the same post that delivered RISC User.*

To me an important factor in deciding what word processor I use is whether it also runs on a PC. However hard manufacturers try, importing files from one word processor to another is never satisfactory. Not only does one lose formatting, but things like underlining as well. Like most offices, my work place uses PCs. I therefore need a a word processor which works on both platforms. Pipedream does this, though the PC version is very antiquated, and so does Protext. I think, whether people like it or not, whether Acorn likes it or not, that this convertibility is an essential unless millions of offices can, overnight, be persuaded to change to Acorn machines.

Elwyn Morris

Compatibility between systems is an ideal which is seldom realised in practice - commercial interest so often dictates otherwise. And it is not only compatibility between PCs and the Archimedes, but between these systems and Apple Macintoshes, and Unix-based systems as well. Even in the PC world there are many different word processing packages with different file standards which are not fully compatible one with the other. The Archimedes already offers the facility to read and write MS-DOS format discs. I cannot, realistically, see much likelihood of compatibility between word processors or DTP systems, and there are too many other underlying differences. However, a product like Protext that runs on both systems is one step in that direction, but one I suspect that for the moment will not be followed by others.

SOFTWARE PRICING

I'm quite sure that anyone reading these pages will not need convincing that illegal use of software is damaging to the industry. I take the view that if I want something I pay for it. As a teacher I feel that we not only have a duty to do the right thing, but to be seen to do the right thing.

However, I feel that some software houses are encouraging fraudulent use of software by quoting ridiculously high prices for site licences. Most companies, it must be said, are very reasonable. RISC Developments, for example, charges £169.00 for 30 copies of Masterfile III. This database program is used across all subject areas and so represents excellent value for money. Similarly Computer Concepts' Impression is easily worth £550 + £15 per machine (up to 20) because it is used by somebody, somewhere in the school every day.

When making software purchasing decisions, I often compare products with Impression, not for their complexity but for cost against the likely amount of use and its probable educational value.

There is an enormous price gap between some of the top software developers. Most of 4Mation's software comes with a free site licence, and as such I would say is over-cheap. Yet Clares want £400 for a secondary site licence for Topographer. This program will never be used as much as Impression or Masterfile as it will only be used for one or two subject *areas. Therefore we will have to do without Topographer which is a shame because it's an excellent program.*

The most noticeable differences come with CD-ROMs. Most companies charge 2.5 times the initial cost of the disc which is expensive for schools. The Hutchinson Encyclopedia (multimedia version) is about £150 for a single user version, £375 for a network licence - a little expensive, but not so much when compared to the cost of the book version. Academy Television, on the other hand, want a whopping £1000+ for a licence to run their Toutes Directions over a network. The single user cost is £130. Good as it is, I could not justify that sort of price even if I could afford it.

I think it is time that major software houses got together to look seriously at their pricing structure and come up with something a little more uniform. Compared to equivalent PC and Apple software, Archimedes programs are generally very good value (Pagemaker for the Apple Mac is £999 for 10 copies).

But if schools can't afford the licence prices, the value doesn't matter. Make the site licences more realistic and sell more licences. Then there should be no excuse for illegal software in our schools.

Geoff Preston

PIN BOARD

PROGRAMS AND APPLICATIONS FOR PUBLICATION

RISC User would welcome good quality programs and applications for publication in the magazine, and on the magazine disc. For the magazine, programs should be relatively short, and not require additional files like templates. For the magazine disc we are seeking good quality (preferably Wimp) applications of all kinds including games (Wimp or non-Wimp). In both cases we will pay you for your contribution, and for the best disc applications we can offer an excellent fee. All contributions should be sent to

The Editor, RISC User,
117 Hatfield Road, St Albans,
Herts AL1 4JS.

Please include adequate documentation on paper with your disc, including a brief description, your name, address and a daytime phone number if possible.

Points Arising ...

A couple of small errors crept onto last month's magazine disc (RISC User 6:8).

BAD FILING SYSTEM NAME

The *!Run* file in *Borders*, *FontI/O*, *Graph Papr*, *ImageCat*, *ImageDemo* and *JustAPage* does not work under RISC OS 2, causing a *Bad filing system name* error. However, the *!Run* file in *Index* is correct, and this should be copied into the rest of them. To copy the file, hold down the Shift key and double-click on each of the applications concerned to open their directories. Then drag the *!Run* file from *Index* into each of the open directories. The applications will now run correctly.

THE CASE OF THE MISSING CUBE

The Save window in *Cube* does not display an icon to drag. The reason for this is that the filetype number, used by the program to identify *Cube* files, was changed, but the Templates file was not changed to suit.

If you have a copy of *FormEd* (supplied on RISC User disc 6:7), you can fix the file very easily by changing the sprite name in the Save window from *file_cbe* to *file_009*.

To make life even easier, we've included an improved version of *Cube* on this month's magazine disc. It runs much faster and also corrects the bug.

NEWCASTLE EMAIL ADDRESS (RISC User 6:8 Page 63)

Some confusion arose from the typesetting of the email address for the Newcastle Info Server. The address should read:

```
    info-server@newcastle.ac.uk
```

The hyphen must be present between *info* and *server*.

WIMP TOPICS (RISC User 6:7 and 6:8)

We are grateful to Keith Vernon for pointing out these errors.

Unfortunately the gremlins have crept into a couple of listings in recent Wimp Topics articles. In Dialogue Boxes (6:7), line 4110 in Listing 4 should read:

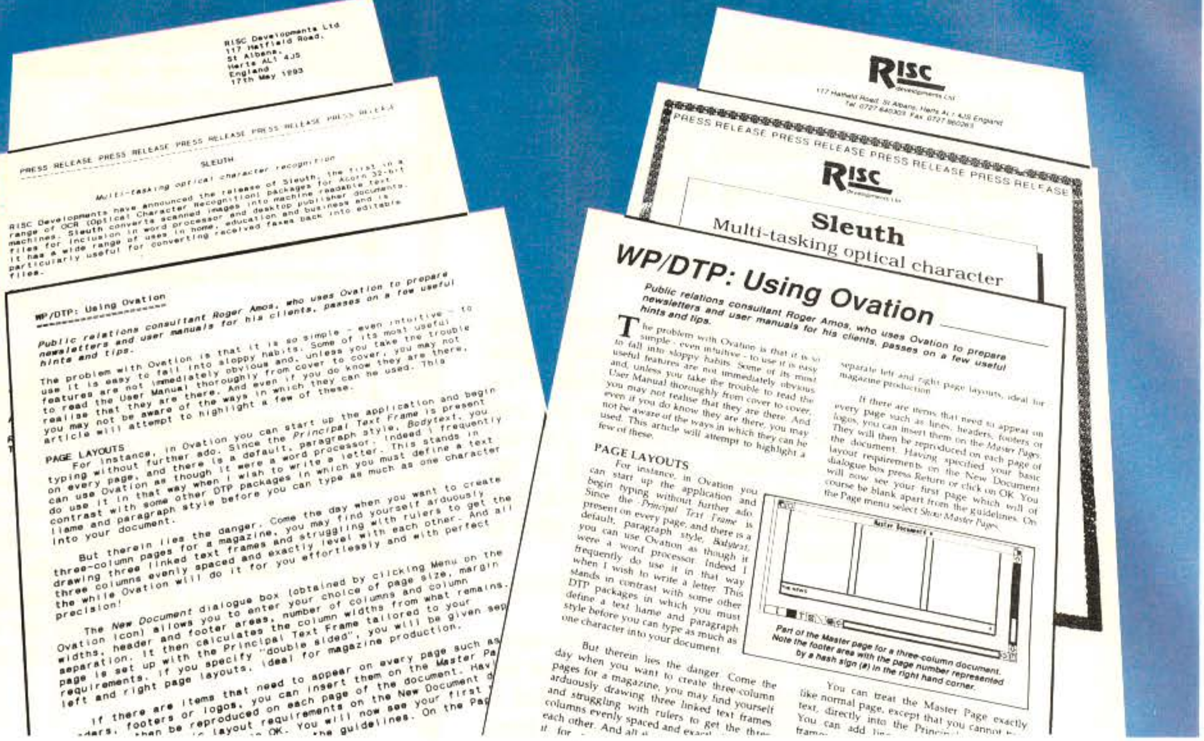
```
  4110 $(block%!28)=spr$
```

while in Panes (6:8) line 150 in Listing 4 should read:

```
   150 WHEN 6:IF bk%!12=pane% PROCclick(
bk%!16)
```

However, the PaneTest application on the magazine disc was correct. Also in Panes, lines 280 and 310 should be amended so that the 4th parameter to FNcreate_icon is 80 and not -80. This also applies to the magazine disc.

Get Smart!



RISC Developments Ltd
117 Hatfield Road,
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England
17th May 1993

PRESS RELEASE PRESS RELEASE PRESS RELEASE PRESS RELEASE PRESS RELEASE

SLEUTH

Multi-tasking optical character recognition

RISC Developments have announced the release of Sleuth, the first in a range of OCR (Optical Character Recognition) packages for Acorn 32-bit machines. Sleuth converts scanned images into machine readable text files for inclusion in word processor and desktop publisher documents. It has a wide range of uses in home, education and business and is particularly useful for converting received faxes back into editable files.

WP/DTP: Using Ovation

Public relations consultant Roger Amos, who uses Ovation to prepare newsletters and user manuals for his clients, passes on a few useful hints and tips.

The problem with Ovation is that it is so simple - even intuitive - to use it is easy to fall into sloppy habits. Some of its most useful features are not immediately obvious and, unless you take the trouble to read the User Manual thoroughly from cover to cover, you may not realise that they are there. And even if you do know they are there, you may not be aware of the ways in which they can be used. This article will attempt to highlight a few of these.

PAGE LAYOUTS

For instance, in Ovation you can start up the application and begin typing without further ado. Since the *Principal Text Frame* is present on every page, and there is a default, paragraph style, *Bodytext*, you can use Ovation as though it were a word processor. Indeed I frequently do use it in that way when I wish to write a letter. This stands in contrast with some other DTP packages in which you must define a text liame and paragraph style before you can type as much as one character into your document.

But therein lies the danger. Come the day when you want to create three-column pages for a magazine, you may find yourself arduously drawing three linked text frames and struggling with rulers to get the three columns evenly spaced and exactly level with each other. And all the while Ovation will do it for you effortlessly and with perfect precision!

The *New Document* dialogue box (obtained by clicking Menu on the Ovation icon) allows you to enter your choice of page size, margin widths, header and footer areas, number of columns and column separation. It then calculates the column widths from what remains. page is set up with the Principal Text Frame tailored to your requirements. If you specify "double sided", you will be given sep
left and right page layouts, ideal for magazine production.

If there are items that need to appear on every page such as
ders, footers or logos, you can insert them on the Master Pa
then be reproduced on each page of the document. Hav
layout requirements on the New Document d
OK. You will now see your first
the guidelines. On the Pag

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PRESS RELEASE PRESS RELEASE PRESS RELEASE PRESS RELEASE PRESS RELEASE

Sleuth
Multi-tasking optical character

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each other. And all
for

separate left and right page layouts, ideal for magazine production.

If there are items that need to appear on every page such as lines, headers, footers or logos, you can insert them on the *Master Pages*. They will then be reproduced on each page of the document. Having specified your basic layout requirements on the New Document dialogue box press Return or click on OK. You will now see your first page which will of course be blank apart from the guidelines. On the Page menu select *Show Master Pages*.

Part of the Master page for a three-column document. Note the footer area with the page number represented by a hash sign (#) in the right hand corner.

You can treat the Master Page exactly like normal page, except that you cannot
text, directly into the Princi
You can add lin
fram

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?TECHNICAL QUERIES

Alan Wrigley answers your queries on scrolling a text display, printer scrap file problems, altering Resources files, and path variables.

Q *Dear Sir*
When I scroll a DeskEdit window a page at a time, the text is always neatly aligned to the top of the window, whatever the latter's current size. When I do this with my own programs, the position of the text is unpredictable, and the top of the window often cuts off half a line. Is there an easy way to achieve the same effect as DeskEdit?

Peter McGowan

A It is quite simple to do this, by ensuring that every time you open the window you set the vertical scroll position so that it corresponds to the start of a line of text. Whenever the window is scrolled, the Wimp will send your task a request via "Wimp_Poll" to open the window. This request will always be made before the request to redraw the window, so provided you adjust the scroll position before making the call to "Wimp_OpenWindow", the text will always be redrawn in the correct place.

To illustrate this, consider a window which displays text in rows 32 OS units deep. If you want the text to be aligned exactly with the top of the window, you must therefore make sure the vertical scroll position is always a multiple of 32. The current position of the scroll bar is returned at block+24 when the Wimp issues the open window request (and also if you make a call to "Wimp_GetWindowState"). Your response to Wimp poll reason code 2 (Open_Window_Request) would therefore look something like this:

```
block%!24=block%!24 AND &FFFFFFE0
SYS "Wimp_OpenWindow",,block%
```

You should also make sure that if you open the window yourself at any other point in the program, you make the same adjustment to the scroll position if necessary, between calling "Wimp_GetWindowState" and the call to "Wimp_OpenWindow". You might want to do this, for example, after a search operation which has located a section of text in a part of the window not currently on display.

Q *Dear Sir*
On trying to print a file, all I get is the error message "Cannot open printer scrap file". Could you please tell me how to get my system to print anything out?

A.J.Morton

A Printing operations via the RISC OS printer drivers make use of scrap files to store data temporarily during the transfer from application to printer. Within the *!Scrap* application (which you should have in the root directory of your hard disc or your current working floppy), there is a directory called *ScrapDir*, and within this are a number of further directories. These are used by various applications for temporary storage, and one of these directories is *Printers*, which is used by the printer manager.

The reason for the error message you have received is simply that the disc containing your Scrap application is either full or it is write-protected. In either case the printer manager cannot create any new files on the disc. You may also get the message "Printing aborted: Disc full" in the same circumstances. The solution is to ensure that there is always plenty of space on the disc in question, and if you are working with floppies, ensure that the disc containing !Scrap is not write-protected.

Q *Dear Sir*
In Technical Queries (RISC User 6:6) you described how to alter an application's !Run file so that it started up with a specified document already loaded. You can't do this with RISC OS 3 Edit and Draw, since the !Run file is in ROM as part of the Resources filing system. Is there any way to get round this?

K-H.P. Fleischmann

A You could of course move the complete Edit application onto your hard disc, but this negates the advantages of having it in ROM in the first place. The simplest way to achieve the result you want is to include a line in your

Desktop boot file which runs Edit and opens the relevant document, as follows:

```
Run Resources:$.Apps.!Edit <pathname>
```

where *pathname* is the full pathname of the file. However, your query raises the general question of how to modify files which are held in the Resources filing system in ROM. The way to do this is to set up a module which replaces the file with a modified copy of itself. The RISC User 6:5 magazine disc contains an application called *NewResources* which enables you to do this.

First of all you must copy Edit's !Run file to somewhere on disc. Then modify it in the way described in the technical query in RISC User 6:6 and save it back to its new home. Now run NewResources, and drag the modified !Run file into its window. Alter the Resources path in the NewResources window to *Apps.!Edit.!Run*, and save the resources module somewhere convenient on your hard disc. Finally put the following line into your Desktop boot file:

```
RMLoad <pathname>.<Resources>
```

where *pathname.Resources* is the full pathname of your new resources module. Now whenever you run Edit from Resources.Apps, the new !Run file will be run instead of the original, and Edit will therefore start up with the specified document loaded.

Installing resources in a module in this way has the effect of adding them to the Resources filing system. If any of the new resources duplicates an existing object, then ResourceFS will treat the new item as the current one. The module must have the correct header information and call the appropriate SWIs in order to be registered with ResourceFS; the NewResources application takes care of this automatically. For more details, see the RISC OS 3 PRM.

Q *Dear Sir*
Since upgrading to RISC OS 3, I have noticed when looking at the list of system variables in my machine that a lot of applications seem to have an App$Path variable as well as, or instead of, an App$Dir variable. What is the difference between the two?

Peter Kithstone

A The ...*$Path* variable is not new to RISC OS 3 (you could have seen *System$Path* and *Wimp$Path* before, for example), but it has become more widely used with the new operating system. Both variable types are used for similar purposes: they are set up to contain a pathname, which usually points to the directory where an application's disc-based resources may be found (sprites, templates etc.). The difference between the two types is quite significant, however. While both variables hold the pathname as the variable's value (i.e. they are always string variables), declaring a variable ...*$Path* tells RISC OS that the path contained in the variable can be accessed simply by suffixing the first part of the variable name with a colon. This is known as a pseudo-filing system, since it looks very like a filing system in use. For example, to access a path set up with a variable *App$Path,* you would prefix files with *App:,* just as you prefix files on an ADFS disc with *adfs:.*

As an example, consider an application called *MyApp* which is located in a directory *adfs::HardDisc.$.Apps.* When the application is run, it could set up a variable called *MyApp$Dir,* which it would most likely do by setting it to the value of *Obey$Dir.* This would result in the variable containing the string "adfs::HardDisc.$.Apps.!MyApp". Subsequently the application would access its resources by reference to the value of MyApp$Dir. It would either do this by prefixing filenames with "<MyApp$Dir>.", which would be expanded into the full pathname by the operating system, or by setting up a variable of its own (e.g. *dir$*), using the SWI "OS_ReadVarVal" to read the value of the system variable *MyApp$Dir.* Either way, all filing operations use the full pathname, either stated or implied.

However, setting up a path variable called *MyApp$Path* to point to the same directory enables the application to access files in future by referencing only the path (or pseudo-filing system) itself, rather than its full name. The path in this case would be *MyApp:,* and so the templates file for instance could be accessed by specifying *MyApp:Templates.* This can make life a little simpler for programmers, particularly when writing in Assembler. If you use a $Path instead of a $Dir variable, it is very important to note that it must have a full stop at the end. For example, whereas the former might be set as follows:

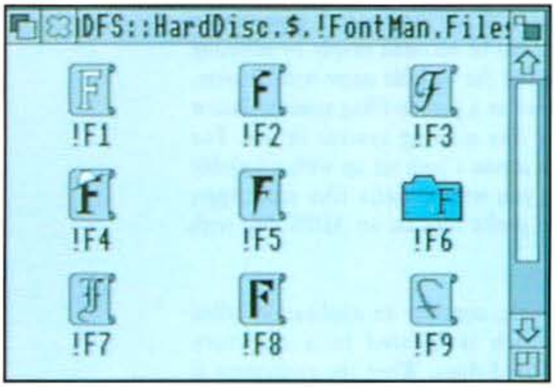
```
Set MyApp$Dir <Obey$Dir>
```

the latter must be:

```
Set MyApp$Path <Obey$Dir>.
```

Font Manager

by Bill Wallace



A selection of font families under control of Font Manager

For reasons of space, both applications described on this page are supplied only on this month's magazine disc.

If you've been taking advantage of all the font offers currently being advertised, then you will probably have discovered that having a large number of fonts stored on your hard drive can be more of a problem than a pleasure.

Finding the right style of font out of a selection of several hundred is difficult enough, but if you use several font directories, you can end up generating the dreaded 'Buffer overflow' error if the *Font$Path* alias (used to identify to RISC OS where your fonts are located) grows longer than 255 characters.

Font Manager provides an excellent solution to this problem. It allows you to group different styles of fonts (e.g. Serif, Gothic, Open, Headline, etc.) into unique font directories that are recognised by their distinctive icons. Double-clicking on any of the font directory icons will add their paths to Font$Path, thus installing them ready for use. When you have finished using the fonts in a particular font directory, just double-click on its icon again. This will de-install the directory, and remove its reference from Font$Path.

For full instructions on how to use this smart application, see the documentation on the magazine disc.

DeskEdit 2 is an exceptionally powerful desktop editor for Basic programs and C source code - but it is also very easy to use.

- Just open a window and type in your program. Press F3 to save it at any time. Press Ctrl-Shift-F3 and your Basic program will be saved and run interactively from within the Desktop - and if the name of the program is !RunImage then DeskEdit will run the parent application - Magic!
- If you are using line numbers, these are automatically handled for you.
- All Basic's abbreviations are automatically implemented.
- DeskEdit provides all the search and replace options of Edit plus some very special ones: DeskEdit's *QuickSearch* can take its target from any marked text (to avoid typing), and you can specify that it will only find matches in PROC and FN definitions.

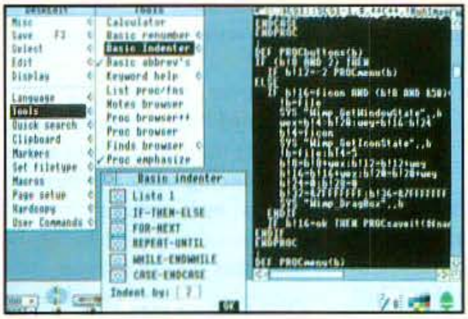
***Archimedes World**'s feature on programming editors (August1993) says of DeskEdit 2:*

"With so many features . . . . . this is an excellent choice of editor for anyone who programs. . . . . . The whole feel of this product is one of utter professionalism."

*and it's review of DeskEdit 2 (February 1993) awarded a maximum score of 5 out of 5 in all four of its categories - **performance, features,value for money, overall.***

Harness the Power of Desktop Basic and C with

DeskEdit 2



- Special Browsers instantly build up scrollable lists of all defined procedures and functions.
- DeskEdit contains more than 100 special key combinations.
- A fully customisable Basic Indenter will format selected portions of your program.
- An Undo feature lets you Undo and Redo your editing, and this together with all markers and many other features is optionally saved to disc when you save a program.

Moreover, DeskEdit is just as at-home with text (for editing Obey files, writing letters, or complete books), and with the C language, providing most of the features offered to Basic users (where applicable) with others added - including a syntax checker.

- A customisable Help facility gives syntax Help on all Basic key words. A *Caret info* feature gives information about the character at the caret; and a file information feature gives you information on any file dragged to DeskEdit's icon when Alt is pressed.
- There are numerous markers and position finder features which make scrolling through your program to find a particular line a thing of the past.
- Plus Backup saves, special delete and tabbing options, a programmer's calculator which can import and export data, a flexible clipboard, powerful printout features, fully customisable user commands, powerful macros etc.

DeskEdit comes with:
- fully illustrated 70 page manual (*with index*)
- function keystrip
- smart quick reference card
- freebies, including a desktop dustbin and Acorn's multi-file Find application.

Stock Code: ***PDE2b***
Price: ***£26.95 inc VAT***
Upgrade: ***£9.95 inc VAT** (Code **PDEXb**)*

RISC Developments Ltd,
117 Hatfield Rd, St Albans, Herts AL1 4JS. Tel. 0727 840303 Fax 0727 860263

Tanks

by Geoff Scott

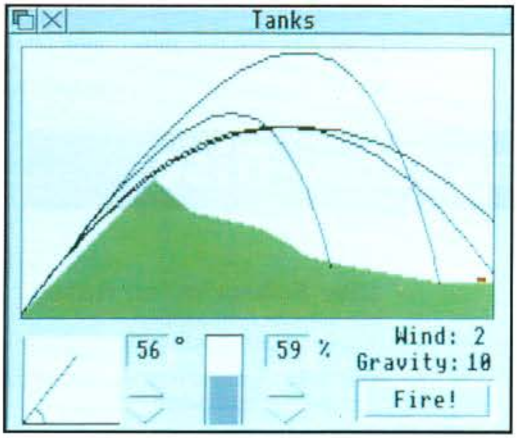
Tanks is an original little game that will provide many hours of fun. It runs in a window on the Desktop and multi-tasks with other applications.

The aim of *Tanks* is simple - to destroy the enemy base. You occupy a tank in the bottom left-hand corner of the battle field, and your target is the enemy base, represented by a red square on the right-hand side of the field.

To help you carry out your mission, you have been provided with an unlimited supply of projectiles and an airspeed indicator.

As the gunner, it is up to you to check the strength and speed of the wind, and set the angle of the turret and the power with which to fire your projectile. You also have to take into account the effects of gravity and air resistance on the projectile.

Through the Preferences window, you can adjust the wind strength, gravity, and target size, as well as whether the game multi-tasks or not. Tanks is compatible with RISC OS 2 and 3. and under RISC OS 3, supports the Desktop Boot Save option.

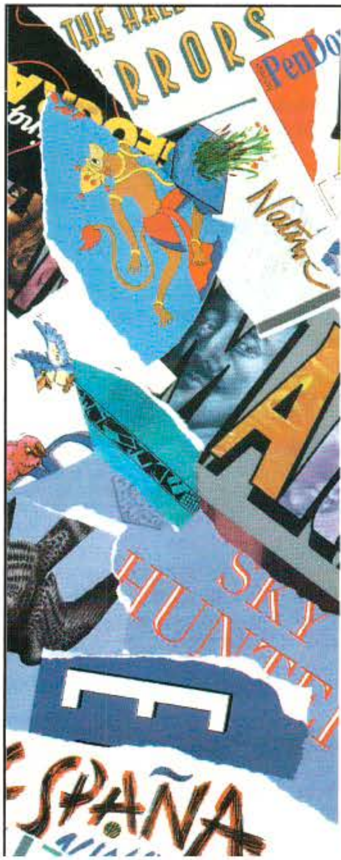


56 °

59 %

Wind: 2
Gravity: 10

Trying to hit the target



Education Software Programming Opportunities

Longman Logotron is looking for RISC OS programmers with the skills and aptitude to work on developing exciting educational applications for younger children.

An appreciation of educational needs, visual awareness, graphical expertise and programming ability are all equally important qualities.

We can offer you the opportunity of working with one of the largest and most successful publishers in UK education, with all the marketing benefits and development resources you would expect.

If you think you might be the kind of person we are looking for, Please contact us now.

Some examples of previous programming work would be very helpful.

Nicola Bradley
Longman Logotron
124 Cambridge Science Park
Milton Road,
Cambridge CB4 4ZS

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Elsewhere	£39.50	£41.00

Please note that new subscription rates are £1.50 more than renewals.
All subscriptions, including overseas, should be in pounds sterling.
We also accept payment by Connect, Access ,Visa, Switch and official UK orders are welcome.

Magazine Disc

The programs from each issue of RISC User, together with a number of substantial additional items, are included on a monthly 3.5" disc. This is available to order, or you may take out a subscription to ensure that the disc arrives at the same time as the magazine.

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Six months subscription	£25.50	£30.00
Twelve months subscription	£50.00	£56.00

Disc subscriptions include postage, but you should add the appropriate rate (see below) per disc for individual orders.

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Last month's special offers on back issue discs and magazines are being maintained. All issues are currently still in stock except Volume 1 Issues 4&5 magazines. All subject to availability. Please include postage when ordering.

	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5
Magazine	£1.00 each	£1.20 each	£1.60 each	£1.90 each	£1.90 each
Disc	£2.00 each	£4.00 each	£4.00 each	£4.75 each	£4.75 each

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* Please use stock code 'a' when ordering magazines and discs

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0097b	Playback	22.33	18.98
PGLTb	PolyGlot	19.95	14.95
PFNT	RISC User Fonts Disc	14.90	9.95
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0090b	Star/Epson Printer Driver	17.63	14.98
0092b	TypeStudio	52.88	44.94
PWPTb	Wimp Programmer's Toolkit	19.95	14.95

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Telephone 0727 840303 Fax 0727 860263

Classifieds

Members may advertise their unwanted computer hardware and software through the personal ads column free of charge. However, we are unable to guarantee in which issue your advertisement will appear.

- WANTED: scrap printer head for Panasonic KX-P1124 printer. Tel. 0462 682167.

- Acorn First Word Plus (release II), Clares Artisan (release II), £25 each. Tel. Kent 0843 298902.

- 10 month old A5000 40Mb hard drive 4Mb RAM, RISC OS 3.1 with numerous software items, will deliver free within 60 miles of Stafford £1,260. Tel. Stafford 0902 850605.

- Panasonic printer KX-P1124 24 pin dot matrix printer, good condition with original box etc. £110. Tel. Derby 0332 557751.

- Acorn DTP £40, 1st Word Plus (release II) £35, Genesis+ £60, all in mint condition, original discs with manuals, special offer all 3 for £115. Also BBC model B and numerous software, ROMs, books etc. £100 the lot. Tel. Shropshire 0746 765812.

- Midnight Tracer £25, Genesis Plus £14, Acorn DTP £19, 1st Word Plus (release II) £5, Drawbender £5, FontFX (RISC OS 3) £5 , Shape FX £5, Euclid £25, Investigator 2 £15, E-Type £5, Pacmania £5, Interdictor £4, Apocalypse £9, Air Supremacy £11, Lemmings £9, Superior Golf £5, Trivial Pursuit £5, Acorn JP printer boxed as new £149. WANTED: Image Outliner, Helix Basic, RISC Basic, DeskEdit 2. Tel. Devon 0626 853774.

- WANTED: Spare ARM2 processors, ie. from ARM3 upgrades, for student's experiments in parallel processing. Must be of the socket-mounting type. I will cover the cost of postage. Tel. Bedford 0525 403163.

- Acorn Floating Point co-processor £250 o.n.o. Chartwell £15. Tel. Cheshire 0925 811420.

- PC Emulator v1.8 £70, Fortran 77 £65, Equasor £35, Twin source code editor £20, Wordwise A+ £20, Real McCoy I & II £16 each, Chocks Away v2 £15, Professor Mariarti £12. Tel. London 081 503 6548.

- Minerva Multistore database £65, Schema spreadsheet £65. Tel. 0622 814970.

- 42Mb RISC Developments A3000 external IDE hard disc (BEEBUG Code 5281) £175. Tel. Stoke on Trent 0782 393535.

- HCCS unit used 6 weeks together in A3000 to get data: User-Analogue port £24, 2nd drive interface £12, also Drop Ship (too difficult for me) £8. Tel. Leeds 0532 653643.

- 2Mb RAM board for A3000 by RISC Developments £25, also Interword and Sigmasheet both unused £15 each. Tel. 0423 871578.

- TwoQuantum pro-drive 105 Mb 3.5" HH HDD fast drives (12msec) 64k cache DFS buffer, Deskedit, Interword, Intersheet, Spellmaster, Pacmania, Zarch, Enter the Realm, Acorn DTP, First Word Plus, Genesis, Timewatch, Accodato 512k serial printer buffer. Tel. Coventry 0203 410047.

- Cumana CAA 532 CD-ROM drive, Cumana SCSI interface for 300, 400 series and A5000, Hutchinson Electronic Encyclopedia, Revelation 2, Acorn Replay demo, The Times & Sunday Times demo, Sherlock Holmes, Illustrated Holy Bible and Illustrated Shakespeare CD ROMs, 4 months old, perfect condition, cost £699 sell for £550. Tel. Hay-On-Wye 0497 821283 after 5pm.

- A5000 4Mb RAM, 40Mb HD RISC OS 3.1, 18 months old, excellent condition, boxed, manuals etc. £975, Acorn Pocketbook, 2 months old £145 o.n.o. RISC OS 3.1 upgrade (ALA31), unregistered £25. Tel. Stoke on Trent 0782 771914 or 412515 extn 4034.

- Acorn A3000 2Mb RAM, RISC OS 3, Acorn colour monitor with stand and software Learning Curve £475, Watford hand scanner (black/white), Impression £100, Revelation II £40, Artisan £30, Programmers Reference Manuals RISC OS 2 £25, BBC Basic Guide £10, Archimedes Operating System £7, Archimedes Assembly language £7, Wimp Programming for All £6, if sold as joblot £700 will sell separately. Tel. Kent 0959 571042.

- Cheap software. PC Emulator v1.7 with Dr DOS 5.0 £40, Genesis Plus £15, Acorn DTP £30, Flight Sim Toolkit £20, Saloon Cars £10, postage extra. Tel. Oxford 0865 326641.

- Psion Organiser II model XP, 32k datapak, 32k RAMpak, 16k DATApak, mains unit, manual £85. Tel. Sunderland 091 536 2066.

- WANTED: RISC User volume 1 issue 4, fair price paid for clean copy. Tel. Southampton 0703 464248 eves.

- 8Mb A540, RISC OS 3, 120Mb SCSI hard disc, Acorn I/O podule with IIC interface, BEEBUG 2nd floppy disc interface, Acorn AKF12 monitor, PRMs and Cumana CD ROM drive, all offers considered. Also Dictionary of the Living World CD ROM, Revelation 2 (on CD ROM and floppies) and BEEBUG C Development system. All offers considered. Tel. Gwent 0873 853538.

- Hand scanner, Watford Archie mark II for A400 series or A5000, £99 o.n.o. Voyager (=Magic) modem, for BBC or Arc £19, black dial telephone £10. Tel. Hertfordshire (0582) 833937.

- Hostages £4, Dread Dragon Droom £10, Top Banana (Hex) £5. Write to; PO BOX

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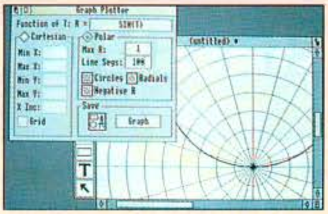

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ARCSCAN INDEX data for RISC User Magazine Volume 3.

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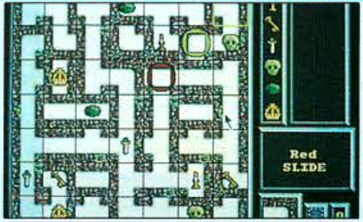
AMAZE a graphically superb sliding block game with a difference.

CRIBBAGE an excellent implementation of the well known card game.

PICK A PAIR a colourful game testing your skills of observation and memory.



MORIC a colourful 'ladders and levels' game.

OGRE'S LAIR - a highly entertaining arcade type game

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CHARDES - character designer for creating new system fonts.

B_TO_T - edit Basic programs without leaving the Desktop.

SETTYPE - change the filetype of any file by dragging it to the icon bar.

HOTKEYS allows single key presses to perform a wide range of functions.

MOUSE - change the mouse speed merely by clicking on an icon.

PRINT - print files just by dragging them to the icon bar.

CALC_570 - a Desktop scientific calculator.

NOTEPAD - provides for up to eight pages of jottings.

DUSTBIN - delete files by simply dragging them to its icon.

FILEFIND -performs a hierarchical search for a given file, application or directory.

DIARY

SCHOOL CHILDREN PROVE THAT NEW BYPASS WILL DAMAGE THE LOCAL ENVIRONMENT

EXCLUSIVE

BY MATTHEW DAVIES

USING an innovative new program on their classroom computer children from St. Chad's School have shown town planners that a proposed new bypass would have a detrimental effect on their local environment.

The children surveyed the local area and fed details into their Topographer program, which allows them to look at the relevant area in 3D. They then added the new road along its proposed route and it became obvious that the road would not only affect an area renowned for its badger population but would also distract children in the classroom as they would be able to see traffic moving along the new road.

The children even went as far as to propose a new route for the road to the town planners. The proposed route would have a negligible impact on the area but still provide the much needed relief to existing roads.

A SERIES of sweeping proposals which would abolish free parking in district shopping centres, change some bin collections, increase lettings charges and scale down mileage claims by some council officers, have been announced by Labour.

In the first indication of their intentions si
seizing power jointly with the Conservati
party has produced a h
1,000
serv

● REDUCING mainten
Other econ
departmental b
cutting scho
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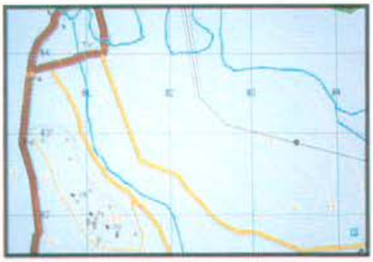
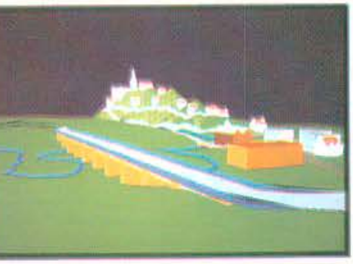
Th

Topographer is a major application for the Geography curriculum which allows children (and teachers) to have lots of fun whilst learning all about maps, contour lines, valleys, rivers etc. In fact *Topographer* covers virtually all items found on a map.

The real break through with *Topographer* is its 3D section which allows you to convert a 2D map into a 3D model on screen. Imagine turning a set of flat contour lines on a 2D map into a 3D model which clearly shows the hill — no more cardboard cut out models or papier mache! You define where you look from, and what you look at.



Topographer also covers aspects of the IT and maths curriculum with its modelling capabilities. Just stop for a minute and think of the projects that you could do with *Topographer*. You could make a map of the local area with churches, pubs, woods etc. and then view it from various places. If there is a bypass proposed you could add it in to the existing landscape and see where it is visible from and what impact it is likely to have on the community. I'm sure you can think of a hundred and one topics.



◆ Fully RISC OS 2 & 3 Compliant and 1 megabyte friendly ◆ Suitable for all ages from 6 onwards ◆ Easy and quick entry of all symbols (over 100) ◆ Wooded areas which translate into impressive 3D landscapes ◆ Definable map size and scale which can be linked to the national grid references ◆ Powerful 3D mode giving a true representation of the landscape ◆ Stunning 3D models which can be saved as a sprite file for use with other applications.

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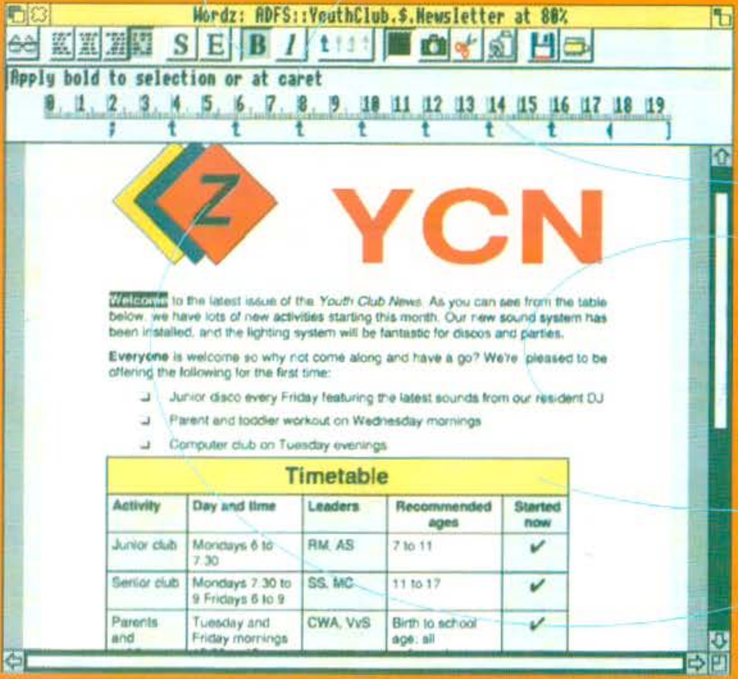
news from Colton Software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Z
YCN

Welcome to the latest issue of the *Youth Club News*. As you can see from the table below, we have lots of new **activities** starting this month. Our new **sound system** has been installed, and the lighting system will be fantastic for discos and parties.

Everyone is welcome so why not come along and have a go? We're pleased to be offering the following for the first time:

- Junior disco every Friday featuring the latest sounds from our resident DJ
- Parent and toddler workout on Wednesday mornings
- Computer club on Tuesday evenings

Timetable

Activity	Day and time	Leaders	Recommended ages	Started now
Junior club	Mondays 6 to 7.30	RM, AS	7 to 11	✓
Senior club	Mondays 7.30 to 9 Fridays 6 to 9	SS, MC	11 to 17	✓
Parents and	Tuesday and Friday mornings	CWA, VvS	Birth to school age: all	✓

At last, the word processor the Archimedes has been waiting for. A program that's so easy to use you'll be able to create great-looking documents the first time you use it. The facilities used most are in the *button bar*, and the *status line* gives you instant feedback. Just click and drag in the *ruler* to set margins and tabs; click on a button to cut and paste - it's that easy.

Wordz has all the features you'd expect from a state-of-the-art word processor. The powerful style editor gives you complete control over all aspects of your text; *font, spacing, margins*, and *colour*. Unparalleled control over *tables* including dragging to resize columns and rows. Speedy check-as-you-type or whole document spell checking. Import *pictures* and text from other programs, including PipeDream.

Wordz is the first of a family of programs which share the same easy user interface and include dynamic data linking. The spreadsheet Resultz will be available in mid-1993.

Wordz costs £99+VAT. *"Is it easy to use? It's falling-off-a-log easy to use."*

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The range of TurboDrivers has expanded to include versions for the Hewlett-Packard DeskJet and LaserJet range of printers, as well as the Canon bubblejet range. The latest release 3 versions are now fully RISC OS 3.1 compliant, offer new advanced features and are faster than ever before.

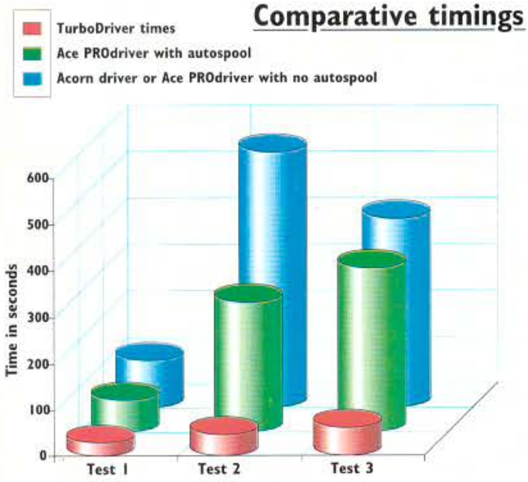
The bottom line is that if you value your time, the TurboDrivers are for you - they can render pages and give control back typically at between three and ten times faster than Acorn printer drivers or Ace PRODrivers. Indeed once the image has been rendered then the printing continues entirely in the background - as fast as the printer will go. This makes a large difference for just one page and an enormous difference if you are printing more than one copy of each page.

FEATURES

- **Full 24-bit colour support for Canon BJC-800 and HP DeskJet colour printers.**
- **Three or four colour separations - even for mono printers.**
- **Extensive halftone screen control - different screen types, angles, screen density; features you would normally only find on expensive PostScript printers.**
- **Print from file entirely in the background.**
- **Fully RISC OS 3 compatible - works with !Printers and supports rotated text and sprite printing, multiple printers etc.**
- **By far the fastest printer drivers available for Acorn 32-bit computers - see chart.**

RISC OS 3 Turbo DRIVERS

Comparative timings



Test1 - A single DTP page of text and scanned graphic images
Test2 - Two copies of a three page text and graphic document
Test3 - A complex full page of graphics from ArtWorks.

The timings indicate the time in seconds to get control back. All tests performed on HP DeskJet 500 printer using a 4Mbyte A440 with an ARM3 fitted. Other machine combinations show similar performance gains.

Illustrated are a selection of printers supported by TurboDrivers. There is constant development in driver support so please contact Computer Concepts for details of latest printers.

Canon TurboDrivers £49 + VAT (£57.57 incl.)
(supports all BJ-10, BJ-200, BJ-230, BJ-300 and BJC-800 printers)

HP TurboDrivers £49 + VAT (£57.57 incl.)
(Supports all monochrome and colour DeskJet and LaserJet printers)

Please specify printer type when ordering. The BJ-230 and all HP TurboDrivers are only suitable for RISC OS 3.1 machines. 2 MBytes required.

Computer Concepts Ltd

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